

An Analysis of Certain Aspects of
Perception and Behavior Among Principals
While Enrolled in a Leadership Course

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CHAPTER I

INTRODUCTION

During the past twenty years professional educators have become increasingly interested in the problem of improving leadership. They have examined and discarded numerous tenets of the traditional concepts of what composes leadership and of how a person comes to be a leader. New ideas based upon more objective evidence and more rigorous thinking have been advanced. It is natural that the functioning of school principals be given a prominent place in an examination of leadership since the principal is in a focal position for determining the effectiveness of the school. The efficiency with which he functions and the quality of human relations that he is capable of maintaining influences to a large measure the degree to which the potentialities of the school staff and community resources are developed and released into a school program.

Background for the Study

Beginning in 1946, plans were formulated by leaders in school administration for exploring ways to serve educational administration better. As a result the Cooperative Program in Educational Administration came into existence. With funds from the W. K. Kellogg Foundation five regional conferences were held and centers established to coordinate the work of the Cooperative Program in Educational

Administration. A coordinating center at George Peabody College for Teachers was designated to serve the southeastern states and in 1951 the Southern States Cooperative Program in Educational Administration was created (19). The Kellogg Leadership Project at the University of Florida is a sub-project of this organization.

At the University of Florida a comprehensive study of the relationship of leadership behavior of school principals to human relations, pupil achievement, and program development has been completed under the auspices of the Kellogg Leadership Project. In the original statement of the research proposal for this study the following major hypotheses were stated:

- Hypothesis 1: Leadership potential can be identified.
- Hypothesis 2: The qualities of personality and the ways of working of the official leader influence to a major degree the relationship within a school.
- Hypothesis 3: Training and experience can change ways of working of the official leader of a school.
- Hypothesis 4: The amount and kind of change in the ways of working of the official leader of a school is in part a function of his personality factors.
- Hypothesis 5: The effectiveness of the official leader of a school is conditioned by the kind of community the school serves (2).

This study was undertaken in four phases. Phase one was a pilot study in which an attempt was made to determine the most effective ways of studying the above relationships. It also included in its purpose the task of producing instruments for the accurate description of the behavior of the principal (1, 4, 5, 12, 23, 26, 27).

Phase two of the study was an attempt to identify and categorize the working patterns of the school principals. By examining a check list prepared about certain school principals, the behavior of each principal studied could be characterized by the frequency of democratic or authoritarian behavior (25). The third phase consisted of a series of studies for examining the relationship of practices by the principal and various aspects of the school (9, 10, 13, 21, 28). In phase four the data from the earlier phases were drawn together. It included the refinement of instruments, determination of new groupings of principal behavior, and the obtaining of measures for predicting community reaction to a principal's behavior (6, 11, 14, 17, 24).

As a result of these investigations, some types of principal behavior that appear to promote good school administration have been identified. Leadership courses are being used by educators as a device by which school administrators and prospective school administrators are helped to understand better leadership practices as indicated by research. The present Kellogg Leadership Project study at the University is an outgrowth of the studies mentioned above. It is an attempt to determine the effects of a leadership course upon a group of school principals and their methods of operation. Attempts are being made to measure the effect of any change in the operating pattern of each principal upon teachers, pupils, and parents, and their relationship with each other, with the principal, and to the school.

Major hypotheses of the present Kellogg study are:

1. A laboratory-type leadership training program, brought to the principals of one county school system and lasting for one school year, can change the operating patterns of the principals involved in the program (a) in the laboratory and (b) on the job.
2. The amount and kind of change in the operating pattern of the public school principal is related to how he sees himself, his job, his peers, and his situation.
3. Change in behavior of school principals as a result of leadership training will tend to persist over a period of years.
4. Changes in behavior of school principals will result in differences in school-community relations, teacher attitudes, and possibly other aspects of the school program and relationships (7).

Relationships of This Study to the Over-All Study

Whenever leadership programs are planned or conducted with the purpose of improving the operating patterns of principals, information such as may be obtained in the present Kellogg Leadership Project study should be of value to educators since it will amass evidence as to the effectiveness of such a course in producing such an improvement. The study herein reported is a part of the over-all investigation in that it examines the immediate effects of the course on certain aspects of the subjects' perception and behavior. It is a study of the effects of the leadership course within the laboratory situation and is supplementary to a galaxy of studies to be made for testing the various aspects of the hypotheses above. Within itself it is not an evaluation of the leadership course. It can answer questions about the specified aspects of the course only. Any evaluation should result from a combination of the

findings of this study and the findings of any complementary studies.

Statement of the Problem

This study is directed toward the collection of evidence on parts of hypotheses one and two as stated above. It is an analysis of data obtained about certain aspects of perception and behavior among a group of Hillsborough County, Florida, school principals during a leadership class. Emphasis is placed upon answering the following questions:

1. Will a change occur in the principals' reported perception of themselves and/or others in a group situation as measured by a Q-sort during the course?
2. Will their behavior in the class as recorded on the Bales Interaction Analysis check list change during the course?

The study also examines the data for possible status and dynamic relationships between the measures of perception and behavior.

A Theoretical Background

A theoretical basis for thinking about groups has been advanced by Gordon (15). The following propositions provide a background for advancing hypotheses about changes occurring in a student-centered class (15, p. 323):

1. A group consists of two or more persons who have a psychological relationship with each other. The members exist in each other's psychological field and are in a dynamic relationship with each other.

2. Groups exhibit, during some period, a degree of instability or disequilibrium as a result of forces within the group. The group is a dynamic system of forces. Changes in any part of the group results in changes in the group as a whole.

3. Group behavior which serves to reduce disequilibrium may be called adjustive behavior. The degree to which adjustive behavior is productive is a function of the appropriateness of the methods employed by the group and their relationship to the particular imbalance.

4. A group's adjustive behavior will be most effective when the maximum resources of the group are utilized. This means that maximum participation of all members with each making his best contribution results in the most effective group operation.

5. A group has an internal capacity for adjustment. Provided that certain conditions are met, a group will move toward greater utilization of its capacities and achieve a greater degree of internal harmony and adjustment to its environment.

From the theoretical statement above Gordon states that the following changes may be expected to occur in person-centered groups:

1. A change from ego-centered to group centered participation.
2. A change (increase) in spontaneous expression of feeling and meaning.
3. A decrease in dependence upon the leader.
4. An acceptance of group standards (15, p. 378).

It may be further theorized that if these changes in group behavior occur, they occur as a function of the way the members perceive

themselves and other group members (15, 18). Any such changes in perception will be related to the changes in behavior stated above.

The hypotheses of this study were advanced as probable since they were consistent with this theory of behavioral change.

Hypotheses

School principals enrolled in the leadership course will:

1. Differ in the way they report their perceptions of different facets of their respective behavior.
2. Change in a common direction the way they report their perceptions of their behavior.
3. Experience differential changes in the way they report their perceptions of different facets of their behavior.
4. Report their perceptions of their behavior more nearly like that of an ideal group member after participating in the course than they did prior to the course.
5. Report their perceptions of the behavior of other class members more nearly like that of an ideal group member after participating in the course than they did prior to the course.

School principal "i" enrolled in the leadership course will:

6. Report his perception of his behavior more nearly like principal "j" reports his perception of his behavior after the course than he did before the course.

7. Report his perception of the behavior of principal "j" more nearly like principal "m" reports his perception of the behavior of principal "n" after the course than he did before the course.

8. Report his perception of his behavior more nearly like "j" reports his perception of "i"'s behavior after the course than before.

9. Report his perception of his behavior and the behavior of principal "j" as being more nearly alike after the course than before.

In the leadership class composed of school principals:

10. The total number of units of interaction per individual per unit time will increase or remain constant as time spent in the course increases.

11. The variance in the proportion of units of interaction by each individual will decrease as time spent in the course increases.

12. The proportion of units of behavior characterized as "negative" per individual will decrease as time spent in the course increases.

13. The proportion of units of interaction per student directed to the instructors by students will become smaller as time in the course increases.

14. The principals will exhibit, individually, a greater variety of kinds of nonnegative behavior as time spent in the course increases.

15. The proportion of undesirable behavior per student during the first quarter of the course is negatively correlated with the degree to which reported self-perception of behavior at the beginning of the course is like the ideal group member.

16. Variability of kinds of nonnegative behavior during the first quarter of the course is positively correlated with the degree to which reported self perception of behavior at the beginning of the course is like the ideal group member.

17. Change in proportion of negative behavior is positively correlated with change in the degree to which reported self-perception of behavior is like the ideal group member.

Definitions and Limitations

1. Leadership course: This term is applied specifically to the University of Florida course ED 631 and ED 632, Educational Leadership. The course was conducted in Tampa and the enrollment limited to thirty-six public school principals of Hillsborough County. Classes were held weekly for one academic year with the work expected of students equivalent to that required for six semester-hour college credits.

2. Perception: In this study perception is defined as "awareness of whatever sort, however brought about" (8, p. 291). There were many facets of perception involved in the course and the instructors stated the intention to provide extensive learning experiences for the students. However, perception is considered in this study only as it pertains to the way an individual reports his perception of his behavior and the behavior of others in group situations as measured

by the instrument used.

3. Behavior: This study deals only with observable behavior, verbal or nonverbal, that occurs in the leadership class as recorded by the instrument used.

4. Ideal group member: The hypothetical group member whose behavior best conforms to the stated ideal of the class instructors is so designated.

5. Ideal Q-sort: The configuration of a Q-sort¹ which best describes the ideal group member is so designated.

6. Self-concept: This term is defined as the totality of the perceptions that a person has about himself. This study deals only with that phase of self-concept which pertains to one's behavior in group situations.

7. Concept of others: This term is defined as the totality of the perceptions that a person has about a specific person or group of persons. This study deals only with that phase of concept of others which pertains to behavior in certain group situations.

8. Dependence:* A need to rely for support and direction on the leader, the total group, or an established structure is so designated.

¹For a description of the Q-sort see the section dealing with instruments.

*These terms and definitions are integral divisions of the Q-sort used (22, p. 134). They will be used as categories for analyzing the way the class members perceive themselves as group members.

9. Counter-dependence:* An emotional resistance against dependence; an insistence on maintaining the feeling of independence or leadership at all times is so designated.

10. Pairing:* A need and desire to establish and maintain close personal relationships with other members and to conduct group interaction on an intimate personal level is so designated.

11. Counter-pairing:* A need to keep relationships with others formal and impersonal, and to conduct group interaction on a formal, impersonal intellectual level is so designated.

12. Fight:* A tendency to express negative, aggressive feelings in the group; to withdraw generally is so designated.

13. Flight:* A tendency to inhibit aggressive feelings in the group is so designated.

14. Unit of interaction: A sentence, that part of a statement conveying a complete thought, or an action or group of sentences which can be thought of as a unit is so designated. Such units are classified by use of the Bales Interaction check list.

15. Negative behavior: Any action which may be classified into categories 10, 11, or 12 on the Bales check list (see below) is so designated.

*These terms and definitions are integral divisions of the Q-sort used (22, p. 134). They will be used as categories for analyzing the way the class members perceive themselves as group members.

Instruments

Two instruments were used in this study. A Q-sort was used as a device for obtaining a report from the subjects concerning certain aspects of their perceptions of themselves and of their perceptions of other members of the group involved. The Bales Interaction Process Analysis procedure (3) was used as a system for the observation of the behavior of the group of principals.

Q-sort

The Q-sort was originally developed by William S. Stephenson as an instrument to be used with the Q technique of factor analysis (20). Since that time card sorts of various types have been used for a variety of testing purposes. It is felt that the Q technique is not useful in this study but that a Q-sort used in conjunction with more orthodox procedures of analysis can provide some of the desired tests. The Q-sort used is one in which the item population was developed by the Human Dynamics Laboratory, University of Chicago, as a part of the research done under a contract from the Office of Naval Research (22). Further study of this particular instrument was done by David Rosenthal in a doctoral study (16).

This Q-sort consists of sixty cards with a statement on each, a set of written instructions, and an answer sheet.¹ The subject is asked to sort the cards into a specified frequency distribution. This distribution requires that he place the cards into

¹See Appendix "A" for sample forms of the instructions and answer sheets and a list of the item population.

eleven piles with the respective piles containing one, two, four, seven, ten, twelve, ten, seven, four, two, and one card each. He is instructed to do the card sort in which the items are distributed according to the way the cards describe his behavior in a group situation from that which is most like him in pile one to that which is least like him in pile eleven. When this sort is completed and the results recorded, the cards are shuffled and returned. The subject is then asked to repeat the sort describing another specified person of the group.

Bales' Interaction Process Analysis

A system for the observation of small groups has been developed by Robert F. Bales which attempts to provide for the largest possible measure of objectivity. It provides the following twelve categories for the classification of any observable behavior (3).

- I Shows solidarity, raises other's status, gives help, reward.
- II Shows tension release, jokes, laughs, shows satisfaction.
- III Agrees, shows passive acceptance, understands, concurs, complies.
- IV Gives suggestion, direction, implying autonomy for others.
- V Gives opinion, evaluation, analysis, expresses feeling, wish.
- VI Gives orientation, information, repeats, clarifies, confirms.
- VII Asks for orientation, information, repetition, confirmation.
- VIII Asks for opinion, evaluation, analysis, expression of feeling.
- IX Asks for suggestion, direction, possible ways of action.
- X Disagrees, shows passive rejection, formality, withholds help.

- XI Shows tension, asks for help, withdraws out of field.
- XII Shows antagonism, deflates other's status, defends or asserts self.

Any behavior observed in the group is classified into the appropriate category and recorded on a form developed for this purpose.¹ Each subject being observed is assigned a code number and each unit of interaction (see definitions) is scored. The system also provides for the recording of the sequence (by minutes), the originator, and the target for each unit of interaction. The specific procedures used in administering these instruments are discussed in Chapter Three.

Assumptions

Two major assumptions seem implicit in the study:

1. An individual will, under proper circumstances, attempt to give an honest report of his perceptions.
2. A change in reported perception is indicative of a change in perception.

It is recognized that a person is probably unable to give a perfect report of his perceptions even when he honestly attempts to do so. It is felt, however, that the closeness with which he is able to approach a true report can be improved by providing a situation in which threats to the subject are kept at a minimum and in

¹See Appendix "A" for the form used for this purpose.

which a cooperative spirit is possible. This has been attempted throughout the study. Rapport was established between the research staff and the principals prior to the course. In every step of data gathering attempts were made to maintain this relationship and to present the study as one which could not adversely affect the subjects. A treatment of the reported perceptions cannot be assumed to be a direct treatment of perceptions but it was assumed that a change in a report of perception indicated a change of perception. These are not assumed to have a one-to-one or even a linear relationship, however.

Bibliography

1. Alpren, Morton. "The Development and Validation of an Instrument Used to Ascertain a School Principal's Pattern of Behavior." Unpublished doctoral dissertation, University of Florida, 1954.
2. "A Research Proposal for the Identification of Effective Educational Administrative Leadership." Gainesville: College of Education, University of Florida, 1951. (Mimeographed.)
3. Bales, Robert F. Interaction Process Analysis, A Method for the Study of Small Groups. Cambridge: Addison-Wesley Press, Inc., 1951.
4. Battle, Jean Allen. "Techniques and Instruments for Measuring Certain Student Human Relations." Unpublished doctoral dissertation, University of Florida, 1954.
5. Carter, Patricia Hadaway. "An Exploratory Study of Relationships Existing Among a Public School Principal's Background, Self Concept, Role Concept, Values and Pattern of Work." Unpublished doctoral dissertation, University of Florida, 1954.
6. Farrar, Doc. "Refinement of an Instrument to Determine Certain Characteristics of the Working Patterns of School Principals." Unpublished doctoral dissertation, University of Florida, 1956.
7. "Final Draft of Major Hypotheses, and Subhypotheses to be Considered for Testing in Tampa Leadership Course." Gainesville: College of Education, University of Florida, March 9, 1956. (Mimeographed.)
8. Good, Carter V. Dictionary of Education. New York: McGraw-Hill Book Company, Inc., 1945.
9. Goodwin, George. "A Study of Relationships Among Principals' Operating Patterns, Teacher Activities, and Teacher Human Relations." Unpublished doctoral dissertation, University of Florida, 1955.
10. Henderson, Lee Gibbons. "A Study of Certain School-Community Relationships with Special Reference to Working Patterns of School Principals." Unpublished doctoral dissertation, University of Florida, 1954.
11. King, Maxwell C. "The Relationship Between Parental Attitude Toward the School and Distance Lived From the School, Phase II." Unpublished doctoral dissertation, University of Florida, 1956.

12. Mathews, Walter B. "Techniques for Studying Certain Professional Activities of Teachers." Unpublished doctoral dissertation, University of Florida, 1954.
13. Maynard, Honor. "A Study of Pupil Human Relations Within the School as Influenced by the Principal's Pattern of Behavior." Unpublished doctoral dissertation, University of Florida, 1955.
14. Newman, Floyd. "A Further Analysis of the Methods of Operation of Public School Principals." Unpublished doctoral dissertation, University of Florida, 1956.
15. Rogers, Carl R. Client-Centered Therapy, Its Current Practices, Implications, and Theory. Boston: Houghton Mifflin Company, 1951.
16. Rosenthal, David. "Perception of Some Personality Characteristics in Members of a Small Group." Unpublished doctoral dissertation, University of Chicago, 1953.
17. Smith, Lawrence E. "The Relationship Between Parental Attitude Toward the School and Distance Lived From the School, Phase I." Unpublished doctoral dissertation, University of Florida, 1956.
18. Snygg, Donald, and Combs, Arthur W. Individual Behavior. New York: Harper and Brothers Publishers, 1949.
19. Southern States Cooperative Program in Educational Administration. Better Teaching in School Administration. Nashville: George Peabody College for Teachers, 1955.
20. Stephenson, William S. The Study of Behavior. Chicago: University of Chicago Press, 1953.
21. Sugg, Woodrow. "A Study of the Relationship Between Program Development and the Working Patterns of School Principals." Unpublished doctoral dissertation, University of Florida, 1955.
22. Thelen, Herbert A. Methods for Studying Work and Emotionality in Group Operation. Chicago: Human Dynamics Laboratory, University of Chicago, 1954.
23. Thompson, Yewell. "Techniques for Studying Program Development Within a School." Unpublished doctoral dissertation, University of Florida, 1954.
24. Thomsen, Donald R. "An Analysis of Certain Objective Measures for the Prediction of the Community's Reaction to a Principal's Behavior." Unpublished doctoral dissertation, University of Florida, 1956.

25. Van Aken, Elbert William. "An Analysis of the Methods of Operation of Principals to Determine Working Patterns." Unpublished doctoral dissertation, University of Florida, 1954.
26. Walker, Ralph Harpham. "A Technique for Assessing Teacher Human Relations." Unpublished doctoral dissertation, University of Florida, 1954.
27. Williams, Paul Paton. "Techniques for Studying Certain School-Community Relationships." Unpublished doctoral dissertation, University of Florida, 1953.
28. Wilson, Bruce. "A Study of the Relationships Between Pupil Achievement and the Working Pattern of School Principals." Unpublished doctoral dissertation, University of Florida, 1955.

CHAPTER II

REVIEW OF RELATED LITERATURE

In the course of making this investigation it was necessary to examine a number of procedures and studies. It is the purpose of this chapter to report these sources which proved fruitful and pertinent to the study. They will be presented in the following order:

1. Similar studies.
2. Literature discussing or using the Q-sort.
3. Literature discussing or using an observational technique similar to that used in this study.

The literature on leadership and on the prior University of Florida Kellogg studies has been ably reported and summarized in other studies and so they will not be surveyed here. The reader who is interested in these phases is referred to a study on leadership by Myers (20) for a thorough coverage of the literature on this subject and to studies by Newman and Thomsen (21, 28) for a review of earlier Kellogg research.

Similar Studies

At Syracuse University a human relations seminar was organized in 1953 to assist school administrators with the technical and interpersonal aspects of their jobs. Fifteen Central New York State

school administrators met weekly for fifteen weeks in a five-hour seminar. The first two hours of each session were used essentially as a lecture period. After a dinner hour the group met in a "self-directive climate where members discussed personal, occupational, and technical problems in human relations in relation to their role as chief school administrators" (10, p. 3). During the last quarter of the semester both parts of the seminar were conducted like the second two hours. The research phase of the project sought to measure changes of behavior resulting from the seminar and to indicate any differences between the influence of the two types of procedures used. Four doctoral studies came out of this project, two of which seem pertinent here.

Changes in behavior of the group of public school administrators as measured by an index of verbal participation was the concern of Harold J. Fine (10). Verbal participation was scored by two observers using a system quite similar to the procedure outlined by Rales (1). The twelve categories used for the scoring of verbal responses were considered as continuous and as a unidimensional continuum ranging from the most warm, understanding, democratic type of participation to the most hostile and aggressive type of participation. The upper end of this continuum was considered as the positive direction. Recordings were analyzed for group and individual changes by the use of variations of the "t" test for differences in means. Some findings of the investigation were:

1. The change from first to the last quartile in the combined group was in a positive direction. This difference was significant . . .
2. The change in the content-centered group was not a significant one until the shift in experimental method. After the shift, the difference was significant . . .
3. The change in the group-centered sessions was a positive and significant one . . .
4. While starting at the lower end of the scale, the gain in the group-centered sessions is more rapid and sustained than the content-centered group. The differences between these two are significant at the third and fourth quartiles of the seminar.

5. All the individuals in the seminar with the exception of one show positive or significant change in participation (10, pp. 123-125).

Carl Norman Zimet, in a second study (30), sought to investigate changes in attitude and motivation that took place as a result of the administrators having participated in the human relations seminar. A card picture story instrument was devised and administered to each subject at the beginning and at the end of the class sessions. The projective data thus obtained were analyzed and the following conclusions inferred:

1. The change from pre- to post-test for the combined group on the Total Attitude Scale was in a positive direction (defined as "desirable"). This difference was significant . . . (statistically).
2. The changes from pre- to post-test for each of the fourteen subjects on the Total Attitude Scale were in a positive direction . . . (statistically).
3. The changes from pre- to post-test for the group as a whole on the major attitude scale were in a positive direction . . . (statistically). (30, pp. 200-201.)

A significant positive correlation between the changes recorded by the procedures (projective and observational techniques)

used in the two studies above was reported in Zimet's study (30, p. 203).

In two other studies evaluating a child study training program for teachers Duff and Haddock investigated the changes occurring during the three-year sequence. Duff (8) used a before and after, open-ended interview technique in an attempt to ascertain changes which occurred in the sensitivity of the teachers to the principles of human development. She found that the teachers changed slowly but positively in sensitivity as they progressed through the program. She considered the three-year inservice program to be of minimum length, however.

Haddock (12) also attempted to evaluate the change in teacher sensitivity to human development principles but concentrated her efforts on determining whether any effect could be identified in the classrooms of the teachers concerned. Four observations were made of the teachers in the classrooms periodically during the three years and the results evaluated. It was found that a significant difference in the use of human development principles occurred and that these differences resulted in changes in the classrooms observed.

In an evaluation of a college personal adjustment course, Leino (14) reports the following:

1. The course did not produce changes in the emotional adequacy (adjustment) of the students.
2. The course did not produce changes in the social adequacy (adjustment) of the students.

3. The course produced an increase in the student's fund of information about personal adjustment psychology but a general psychology course did equally well in this respect.

In a follow-up it was revealed that significantly more of the students taking the course utilized counseling facilities than did other students. It was concluded that, although the course failed to bring about desired immediate changes, it might have certain important latent results.

The content achievement and personality changes resulting from two different kinds of classroom settings were compared by Slomowitz (22). One setting was characterized as "problem-oriented" and the other as "nondirectively-oriented." In making comparisons between results obtained in the two classes it was found that only "self-concept" showed a significantly different rate of change. In this aspect the nondirective class proved superior.

Bower (4) investigated the relative merits of three types of short-time, intensive educational experiences for bringing about changes in self and ideal self-perceptions. The three groups studied were (a) a mental health workshop, (b) a graduate guidance workshop, and (c) a graduate course in research methods. During the study an attempt was made to evaluate the methodology--the Q technique as developed by Stephenson (24). It was found that:

1. The mental health workshop resulted in greatest changes in self-concept.

2. In the mental health workshop and the guidance workshop self-concept and ideal self became more coincident.

The investigator believed that the methodology was sensitive to differential educational experiences and provided signs that workshops could be subjected to systematic, scientific examination.

In two studies dealing with changes in "interpersonal perceptions" associated with group interaction, Lundy and Bieri (18) tested the hypotheses that:

1. Following a period of initial interaction, an individual will perceive another as more similar to himself.
2. As interaction proceeds beyond an optimal point, the individual tends to perceive the other individual as less similar to himself.

Results from both studies supported hypothesis one, and results from the second study supported hypothesis two.

In an experiment designed to test the effect of (a) the organization of the group--whether democratic or authoritarian, and (b) certain personality traits, on the efficiency of problem solving requiring the cooperation of small groups, Eber (9) found that the "authoritarian persons" made a significantly greater number of errors when working in a democratic situation. The following hypothesis was advanced: "While anyone can work in an authoritarian situation, working in a democratic one involves a special technique, such as the ability to communicate successfully with others"(9, p. 306).

Bass and Klubeck (2) sought to demonstrate that leadership behavior of a group of girls can be significantly changed through training. The leadership behavior of each girl was observed, a session of instruction and advice concerning leadership held with the individual girls, and then the leadership behavior of the girls again observed. The investigators found that such training significantly increased the leadership behavior of girls fairly high in leadership status initially, but it had a slight negative effect on girls initially low in status.

Lewin (16) was one of the early contributors to the problem of changing behavior through a group dynamics approach. He found during World War II that group discussion and group decision was a more effective way of changing the eating habits of women than was formal lecture. In a similar study an attempt was made to determine the best method for improving the accuracy of the rating of employees by supervisors in a large manufacturing plant (15). Three groups of supervisors were used as experimental and control groups for different training methods. One group received lectures, one was organized as a discussion group, and one received no training. Only the group of supervisors involved in group decision improved in rating accuracy. The lecture and control groups showed no significant change and persisted in overrating the highly skilled laborers and underrating the less skilled workers. It was concluded that group discussion was more effective in changing behavior than was lecture.

See p. 36

In an effort to determine the effect of group discussion upon the privately expressed opinions of group members, Stice (25) found that when original opinions coincided with the group decision, 79.2 per cent of the post-discussion responses changed less than one unit on a seven point scale of opinions. When the original response and the group position differed by 4.45 units, 46.5 per cent of all shifts were of 4 \pm 1 size while 42.3 per cent were of less than one unit size. It should be noted, however, that the information necessary to rule out statistical artifacts, e.g. regression, is not available in the report of this study.

In a report to the American Psychological Association, Christie (6) summarized a study in which the relationship between involuntary military service and the acceptance of authoritarian statements was examined. He concluded that the primary determinant of the degree to which an individual accepts authoritarianism (as in the military services) appeared to be the degree to which his behavior was favorably viewed by peers and superiors. This conclusion probably can be extended to the acceptance of democratic principles.

The Q-Sort

Stephenson (24) is generally credited with developing the Q-sort as a testing device although he states that "we make no claim to be the originator of this very simple operation, for something of the kind has been in existence, probably, ever since there was a schoolmaster to mark essays" (24, p.60). He did, however, claim to have broadened the scope and quantified the device so that it could

be used more effectively. The Q-sort, as used by Stephenson, was primarily an instrument for obtaining individualized data to be processed by the Q-technique. The Q-technique is characterized by the fact that the populations are groups of statements or the like while in the more orthodox R-technique the populations consist of groups of persons. Ultimately, Q is a technique of factor analysis with correlations between test items rather than between individuals. It has been stated elsewhere that factor analysis does not seem desirable in the present study.

The forced choice Q-sort has been used in a number of studies, some of which used Stephenson's Q technique and some of which used other statistics. While working under contract for the Office of Naval Research, the Human Dynamics Laboratory at the University of Chicago developed the Q-sort (27) used in the present study (see Appendix). This Q-sort was used by the Human Dynamics Laboratory to identify sub-groups within a total group through the determination of "valences" for the Bionic "modalities" of fight, flight, pairing, counter-pairing, dependence, and counter-dependence. The item population was developed in such a way that each modality had ten statements with each category being approximately equivalent to the other categories. The higher a person scored the items characterizing a given category the greater his valence was said to be for that category. Results were factor analyzed, divisions within the group identified, and the sub-groups characterized by their valences for the modalities. Stock (26) had earlier shown Q-sort data could be

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used to predict sociometric relations within a group. Using the same theoretical framework (the Bionic modalities), McPherson (19) made a study in which an attempt was made to determine the effectiveness with which group life can be described by the suggested modalities. A group of people were given the Thematic Apperception Test and a sentence completion test. Each test was scored according to the Bion emotionality categories. It was concluded that:

1. The emotional life of a group can be effectively described using the categories.
2. The application of the categories in analyzing the projective test data was useful in qualitative description but less useful in quantitative description.
3. Individual members can be differentiated according to "valency" toward the emotional modalities.

Q-sorts have been used as a device for measuring change in self-concept when a patient is undergoing psychotherapy. In one investigation (11) three types of sorts were used. Patients were given "self" and "ideal" sorts and therapists did an "empathic" sort. Changes in the sorts by patients indicated change during the therapy experience. The empathic sort done by the therapist about the patient indicated the degree to which he was able to "empathize" with the patient at various times during the treatment.

The Bales Observational Technique

Perhaps the most widely accepted technique for group observation developed recently is that proposed by Robert F. Bales (1) for the observation of small groups. The group size used in the studies by Bales are typically of four to six persons but it is stated that the procedure may be applied to any "small group."

A small group is defined as any number of persons engaged in interaction with each other in a single face-to-face meeting or a series of such meetings, in which each member receives some impression or perception of each other member distinct enough so that he can . . . give some reaction to each of the others as an individual person . . . (1, p. 33).

In the Bales Interaction Process Analysis, twelve categories are provided into which all behavior may be categorized (see Chapter One). These may be grouped into three areas:

1. Social Emotional Area-positive
2. Task Area-neutral
3. Social Emotional Area-negative

Another grouping gives the following areas:

1. Positive Relations
2. Attempted Answers
3. Questions
4. Negative Reactions

A third scheme of paired categories indicates:

1. Problems of Communication

2. Problems of Evaluation
3. Problems of Control
4. Problems of Decision
5. Problems of Tension Reduction
6. Problems of Reintegration

Any or all of these systems of organization may be used for purposes of analysis (1, p. 9).

When observing the behavior of a group the recorder uses a code number for each subject. Units of interaction are recorded according to the originating subject, the target of his behavior, the category within which the behavior fits, and the time (by minutes) during which the interaction occurred. Ideally, this observation could be assisted by the use of a mechanical Interaction Recorder, one-way glass separating two or more observers from the subjects, sound recorders, amplifying systems, and other paraphernalia. Essentially, though, equipment need not be more than pencil and paper (1, p. 5).

Buehler (5) conducted a study in which the results from the Bales Technique of observation and the Thematic Apperception Test were compared. Although his results were inconclusive for the testing of his hypotheses as to the relationship of motivation and interaction behavior he states that the "implications regarding the use of small group observation methods in personality research appear to be justified by the experimental procedure and resulting data" (5, p. 314).

Edward Davis (7) used a modification of the Bales technique of interaction analysis in his evaluation of the core curriculum in the P. K. Yonge Laboratory School, University of Florida. He used the categories and definitions of categories without change but modified the recording technique. His group sizes (not strictly a modification) were different from the original experimental groups and he did not use the exact form suggested by Bales. The data were utilized in determining whether or not the pupils had "grown" in group participation skills.

In a study of children's perception of membership roles in small groups, Aleyne Haines (13) used a modified version of the Bales observational technique to obtain data about the interaction of children in problem-solving groups. In this study several modifications of the original technique were made.

1. Not all behavior was scored. Minute behavior considered as having no bearing upon the situation was ignored.
2. Larger units of behavior were adapted for scoring purposes.
3. Each unit of behavior was scored in only one category--no "double scoring" was used.
4. Minor changes were made in the definitions of certain categories.
5. A system of symbols was devised to replace the standardized recording form proposed by Bales. Action was recorded continuously in column form with a line drawn every five minutes to indicate time intervals.

The observational data obtained with the above procedures were analyzed to determine the amount and kinds of behavior exhibited by each group member. It was found that "the patterns of interaction seem to be independent of the total amount of participation contributed by individuals" (13, p.80). The author states that, "The Interaction Process Analysis adapted for use in recording children's interaction in group situations seems to hold considerable promise . . ." (13, p. 177).

The Bales technique was used, among other instruments, to appraise a ten-hour educational administration sequence at Ohio State University (23). The only evaluation made of the observational data was the report of the percentages of responses made by the instructor (37.7 per cent) and the students (62.3 per cent) and of a rank-order correlation (.89) between the patterns of oral problem analysis of the instructor and the students.

Lovell (17), in an investigation of the relationship between style of teacher participation and the structure of sub-groups in the classroom, developed and used a five-point observational scale which he said was based on a Bales-like technique. He used the check list to score the activity of classroom groups according to (a) the style of teacher participation in the total group, (b) the style of teacher participation in sub-groups, (c) the activity of the sub-groups, (d) the interaction pattern in the sub-groups, and (e) the emotional climate of sub-groups. These items were scored every ten minutes by two observers whose recordings were compared for a reliability check. A total agreement of 90.2 per cent was obtained where the

percentage was calculated according to the degree of agreement along the continuum of the checked responses. This was considered ample agreement to indicate reliable observations.

Summary

The literature surveyed here reveals only one group of studies allied to the present University of Florida Kellogg Leadership Project study. Of the four studies in this group, one is parallel to a part of the study made here in that it examined the interaction of a group of school administrators while in a Human Relations Seminar. A number of other sources have been examined which explored methods of changing behavior, investigated the adequacy of instruments for measuring behavioral or perceptual changes, or used instruments similar to those used in the present study. Some of the generalized findings of these studies were:

1. A change is more likely to occur in the behavior of persons participating in a student-centered, low-threat learning experience than in the behavior of persons participating in more formal, structured situations.
2. Changes in behavior have been demonstrated to occur as a result of discussion groups. Group pressures can bring about changes in the operating pattern of people.
3. The Q-sort is a useful instrument for obtaining self reports of various types.

4. The Bales Interaction Process Analysis seems to be a valid instrument for the recording of a group's behavior. Minor variations of this procedure may be used without destroying the instrument's validity.

Bibliography

1. Bales, Robert F. Interaction Process Analysis, A Method for the Study of Small Groups. Cambridge: Addison-Wesley Press, Inc., 1951.
2. Bass, Bernard M. and Klubeck, Stanley. "Amenability to Leadership Training as Related to Leadership Status," The American Psychologist, VII (July, 1952), 310.
3. Elock, Jack. "A Comparison of the Forced and Unforced Q-sorting Procedures," Educational and Psychological Measurement, XVI (1956), 481-493.
4. Bower, Eli Michael. "The Application of Q Methodology in Investigating Changes in Self and Ideal Self as a Result of a Mental Health Workshop." Unpublished doctoral dissertation, Stanford University, 1954.
5. Buehler, Roy E. "An Investigation of Relationships Between Motivation and Interaction Behavior in Small Groups," The American Psychologist, VII (July, 1952), 314.
6. Christie, Richard. "Changes in Authoritarianism as Related to Situational Factors," The American Psychologist, VII (July, 1952), pp. 207-208.
7. Davis, Edward A. "The Core Curriculum in the P. K. Yonge Laboratory School: A Measurement and an Evaluation of Its Effectiveness." Unpublished doctoral dissertation, University of Florida, 1956.
8. Duff, Elizabeth Rowell. "A Study of Changes Occurring in Teachers' Sensitivity to Human Development Principles Before, During, and After Participation in a Three Year Child Study Program." Unpublished doctoral dissertation, University of Maryland, 1955.
9. Eber, Herbert W. "Problem Solving by Small Groups Under Varying Conditions of Personality and Organization," The American Psychologist, VII (July, 1952), 306.
10. Fine, Harold J. "Interaction Process: The Analysis of a Group Therapeutic Experience in a Human Relations Seminar." Unpublished doctoral dissertation, Syracuse University, 1953.
11. Frisch, Paul and Cramston, Robert. "Q-Technique Applied to a Patient and to the Therapist in a Child Guidance Setting," Journal of Clinical Psychology, XII (April, 1956), 178-182.

12. Haddock, Jewell Patricia. "A Study of Teachers' Sensitivity to Human Growth and Development Principles Before, During, and After Participation in a Three Year Child Study Program." Unpublished doctoral dissertation, University of Maryland, 1955.
13. Haines, Aleyne Clayton. "Children's Perception of Membership Roles in Problem-Solving Groups." Unpublished doctoral dissertation, University of Illinois, 1952.
14. Leino, Walter Bertram. "Evaluation of Outcomes of a Personal Adjustment Course." Unpublished doctoral dissertation, University of Minnesota, 1956.
15. Levine, Jacob and Butler, John. "Lecture vs. Group Decision in Changing Behavior," in Cartwright, Dorwin and Zander, Alvin (Ed.), Group Dynamics, Research and Theory. Evanston: Row, Peterson and Company, 1953.
16. Lewin, Kurt. "Studies in Group Decision." in Cartwright, Dorwin and Zander, Alvin (Ed.), Group Dynamics, Research and Theory. Evanston: Row, Peterson and Company, 1953.
17. Lovell, John T. "A Study of the Relationship Between the Style of Teacher Participation in the Total Classroom Group and the Internal Structure of Sub-Groups in the Classroom." Unpublished doctoral dissertation, University of Florida, 1954.
18. Lundy, Richard M. and Bieri, James. "Changes in Interpersonal Perceptions Associated with Group Interaction," The American Psychologist, VII (July, 1952), 306-307.
19. McPherson, Joseph A. "A Method for Describing the Emotional Life of a Group and the Emotional Needs of Group Members," The American Psychologist, VII (July, 1952), 305-306.
20. Myers, Robert B. "The Development and Implications of a Conception of Leadership for Leadership Education." Unpublished doctoral dissertation, University of Florida, 1954.
21. Newman, Floyd W., Jr. "A Further Analysis of the Methods of Operation of Public School Principals." Unpublished doctoral dissertation, University of Florida, 1956.
22. Slomowitz, Martin. "A Comparison of Personality Changes and Content Achievement Gains Occurring in Two Modes of Instruction." Unpublished doctoral dissertation, New York University, 1955.
23. Staub, William Frederick. "An Appraisal of the Ten-Hour Sequence in Cases and Concepts of Educational Administration." Unpublished doctoral dissertation, Ohio State University, 1956.

24. Stephenson, William. The Study of Behavior, Q-Technique and Its Methodology. Chicago: The University of Chicago Press, 1953.
25. Stice, Glen F. "The Effects of Group Discussion upon the Privately Expressed Opinions of Group Members," The American Psychologist, VII (July, 1952), 315.
26. Stock, Dorothy. "The Relation Between the Sociometric Structure of the Group and Certain Personality Characteristics of the Individual." Unpublished doctoral dissertation, University of Chicago, 1952 as reported in Thelen, Herbert A. Methods for Studying Work and Emotionality in Group Operation. Chicago: Human Dynamics Laboratory, University of Chicago, 1954, p. 5.
27. Thelen, Herbert A. Methods for Studying Work and Emotionality in Group Operation. Chicago: Human Dynamics Laboratory, University of Chicago, 1954.
28. Thomsen, Donald R. "An Analysis of Certain Objective Measures for the Prediction of the Community's Reaction to a Principal's Behavior." Unpublished doctoral dissertation, University of Florida, 1956.
29. Warrington, Willard Glade. "The Efficiency of the Q-Sort and Other Test Designs for Measuring the Similarity Between Persons." Unpublished doctoral dissertation, University of Illinois, 1952.
30. Zimet, Carl Norman. "An Investigation of Changes in Attitudes and Motivations as a Result of a Group-Centered Social Action Technique." Unpublished doctoral dissertation, Syracuse University, 1953.

CHAPTER III

COLLECTION OF DATA

It is the purpose in this chapter to present the conditions and procedures which underlie the collection of data for the study. A review of the organization of the leadership class will be followed by an explanation of procedures used in the collection of the Q-sort and the observational data. Conditions which seem to have an influential bearing upon the data will be reported. A knowledge of these conditions and procedures is prerequisite to an interpretation of the findings of this study.

Generally, the plan for collecting data was that the two Q-sorts be administered at the beginning and at the end of the course. The observational data were gathered throughout the class from a random sample of one-half the classes.

The Leadership Class

The course, called the "Leadership Class," is the University of Florida course, ED 631 and ED 632, "Educational Leadership." The University catalog gives the following description of this course:

This is a basic leadership course recommended for majors in administration and supervision. Emphasis is given to the development, initiation, and implementation of programs and policies; to goal determination; and to human relationships. Research projects will center around leadership problems of administrators and supervisors (3, p. 379).

The organization of the leadership class herein studied was primarily the responsibility of the staff of the Kellogg Leadership Project. It was conceived, at the outset, that a class could be organized and taught in a setting that would be conducive to research procedures. Accordingly, liaison was established with the county administrative staff and with the principals of Hillsborough County, Florida, concerning plans for such a course. This county was chosen for several reasons. Close cooperation with the school personnel and Kellogg staff members had been obtained during past studies. The county has a wide variety of politico-socio-economic settings: rural and urban; industrial and agricultural; wealth and poverty; large and small cities; and native and foreign born. Fees for the course were paid by the Kellogg Leadership Project to encourage principals to participate and cooperate in the research phases of the course. Before they applied to enter the course, the principals were aware that extensive research was to be done, and those who entered pledged their support to this research.

Thirty-six principals were admitted to the course. No members of the central supervisory or administrative staff of the county were admitted as it was felt that they might present a threat to the free participation of the principals. Two principals dropped from the course during the first month, leaving thirty-four who completed the course. Graduate credit for the course was received by those desiring it and meeting the requirements for such credit.

This course was taught in the cafetorium of the Broward Elementary School in Tampa under the auspices of the Florida General

Extension Division. The class officially met weekly on Monday afternoons from 3:00 p.m. until 6:00 p.m. Generally, the time organization of the class was such that a planning committee and an evaluation committee met from 2:30 until 3:00, a coffee and refreshment break lasted from 3:00 until 3:15, and the whole class convened from 3:15 until 5:45.

Throughout the course a division was maintained in the function of the research staff and the instructional staff. Two senior members of the College of Education staff were the class instructors and were solely responsible for the instruction, internal class organization, and grading. The data gathered by the research team were not available to the instructors. The principals were aware that this division was made in order to give them a feeling of security and confidence in reporting to the research team.

Prior to the beginning of the course the instructors were asked to make a statement concerning their assumptions, anticipated procedures, and desired outcomes for the course. The following is an excerpt from that document:

PROCEDURES USED BY THE STATUS LEADER:

1. Help people get acquainted with each other.
2. Learn and use names of group members.
3. Try to get people to state their concepts of leadership at the beginning.
4. Try to get people to state problems of leadership they encounter in their work as they see them. The status leaders state leadership problems they have, so those in the class see the similarity between their problems and the status leaders' problems.
5. Work on terminology that the class will encounter in talking and reading.
6. Try to get people to read, but never by direct assignment.

7. Try to get people to share with each other the reading they find significant. This is not necessarily what the leader finds significant. Class members' findings are as important as those of the leaders.
8. Involve students in all planning.
9. Supply only as much structure as the group needs at any given time.
10. Do not try to arrive at structure at the first meeting.
11. Encourage people to state their ideas as to what should be done and how to do it, and examine their and other's ideas prior to reaching agreement on organization and agenda.
12. Encourage people to look on organization and agenda as flexible. Encourage change as insight increases.
13. Suggest organization of a steering committee (particularly where the group is large). This committee does not make decisions for the group. Decisions involving the total group are made by the total group.
14. Hold back as a status leader in suggesting specific action or give several action alternatives. Where there are several status leaders, they may give differing ideas so that class cannot use the staff members as a crutch.
15. Try to become a part of the group.
16. Do not always be the person to summarize. When the status leader does summarize, it is presented as only one person's interpretation of what happens.
17. Try to see that the status leader's comments get no more weight than those of anyone else.
18. Encourage the group to determine its own evaluation procedure.
19. Use the problem of arriving at grades as a part of the learning process.
20. Encourage the large group to break into small work groups so that individuals can work on problems more important to them, and also to give more people an opportunity to practice leadership skills.
21. Use exchange of small group results as a way to study communication procedures.
22. Use the large group for:
 - 1) Large group decision making
 - 2) Discussion of problems emerging from the small groups
 - 3) Sharing of results by staff and students relating to problems emerging from the small group.
 - 4) Summaries at the end of the work unit.
23. Ask individuals to keep records of the work sessions to help them look at their own ideas and self-perceptions of group situations.
24. Use the student's written statement on how he sees things, in his record of work, as a basis for interviews and conferences with the student.

25. Encourage students to evaluate outside group situations in the light of principles formulated as a result of class experiences.
26. Use final evaluation interview in lieu of examination to help the individual look at his relationship with others.
27. Encourage students to try out their new skills in their own school situations.
28. Respond to ideas with questions as a way of stimulating thought. Try to be noncommittal to ideas brought out when the discussion is at a place where the ideas of the status leader would block further discussion.
29. Try to keep from "yessing" and "noing."
30. As a group is exploring the issue or problem, share research evidence that bears on problems, as distinguished from status leader conduct during conclusion-drawing time.
31. Never intentionally hit back at an idea advanced by a student.
32. Ask questions which challenge basic assumptions quietly and in as nonthreatening a manner as possible.
33. Avoid direct argument with a group member.
34. Provide opportunities for students to discuss their problems with the status leader in individual conferences.
35. As much as possible, prevent group members threatening each other.
36. Encourage each group member to help all others.
37. Ask individuals to try something--never insist.
38. Try to help each group member feel he is welcome and wanted; has value; can say what he wants to without it being held against him; is free to raise questions; can change the course of what happens; and is free to make and express value judgments. Also help him see the status leader as a coordinator and facilitator rather than as director and dominator.

OUTCOMES SOUGHT (Stated as Objectives)

1. Help people formulate a clearer concept of the nature of leadership.
2. Increase skill in group planning, decision-making, evaluation techniques, and communicating with other group members.
3. Help individual form a more accurate picture of himself in knowing more exactly his own strength and weakness and also the way others see him.
4. Help the individual become more desirous of helping others grow.
5. Develop increasing skill in the individual in applying these leadership ideas and skills to all types of improvement in his own school program.
6. Increase skill in analysis of practical situations involving group dynamics and leadership.

7. Increase skill in empathy--being able to put self in other's shoes.
8. Develop knowledge of research and of leadership and skill in using these knowledges.
9. Help individual accept increased responsibility for group he works with.
10. Help individual recognize and accept the value of diversity. New or different ideas should constitute no threat (4, pp. 3-5).

The course in Tampa had certain differences from the course as it is taught on the campus of the University of Florida. In the first place, the class in Tampa was composed entirely of principals who worked in the same school system. They had known each other for varying periods of time and to varying degrees of intimacy before the course and had to continue their association with each other after the course. The campus course is typically composed of a mixture of teachers and administrators, few of whom have known each other formerly and few of whom will return to positions in which they must associate with the other class members. The Tampa class met weekly while the campus class meets in varying frequencies according to the scheduling during a particular semester or summer. Campus classes are sometimes larger, sometimes smaller than the experimental course. The principals in the Tampa course had similar problems confronting them and were prone to leave more hypothetical questions to discuss specific issues while other classes may not have such a core of commonality.

Collection of the Q-Sort Data

Prior to the use of the Q-sort in Hillsborough County, it was given to ten college students enrolled in the Educational Leadership

course on the campus of the University of Florida. These students did the sort a total of ten times each, twice about themselves and twice about each of four other people, as a check on administration. As a result of these trial administrations, slight changes in the directions for sorting the cards were made.

The first administration of the Q-sort in Hillsborough County was during the fourth week of the course. This delay was thought advisable to insure that each class member would know the other members. (Even so it was found in three instances that a person doing the sort reported that he did not know well the person about whom he was asked to do a sort.) In administering the sort, the writer made an appointment with each principal in his school and visited him there to give the sort. After a short discussion of the sort, the subject was asked to complete it about himself as he perceived his behavior in a group situation. When this was completed the cards were picked up and another set given to the subject. He was then asked to repeat the procedure with the second set of cards, reporting upon his perception of another specified member of the class. The administrator was available during the entire time to answer any question that the subject might have about the test. In order to facilitate the sorting the test administrator recorded the results from both sorts on the proper answer sheets.

The persons about whom the various members of the class did a sort were determined randomly. Each class member was assigned a code number and these numbers were randomly placed upon a circle

with each person doing a sort about the succeeding person. In this fashion each person did a sort about one other person and had a sort done about himself. The data resulting from the combination of the sorts done about "others" provide a sampling of the reported perceptions that the class members have of their class mates.

One week before the course was over, the above testing procedure was repeated to get an "after" measure of reported perceptions. The same random circle of members was used at the end of the course as at the beginning but was reversed in direction so that each member did the sort about a new person.

The Ideal Sort

An "ideal" Q-sort configuration was determined by asking both instructors to do the sort both at the beginning and at the end of the year into what they perceived as its best arrangement for describing a hypothetical "ideal group member." It could thus be determined whether or not the instructors' statement of the ideal changed. The "ideal" sort provided a measure for evaluating the direction of any change reported by the class members.

Instrument Reliability

In order to obtain an indication of the reliability of the Q-sort for this particular population, the test was given twice on successive days to six Hillsborough County school principals not enrolled in the leadership class. The test administration followed the same process as was described above for the experimental subjects.

Collection of the Observational Data

Before the beginning of the leadership class the investigator began a training program designed to develop observer proficiency in the use of the Bales observational technique. This program consisted of practice observations and the study of the Bales categories and system of observation. Practice time, as recommended by Bales, was approximately thirty hours. Observers became acquainted with each principal prior to the first class through face-to-face contacts (in the case of one observer) and pictures (both observers). Both names and code numbers were memorized for each individual.

As a check on reliability, independent observations were made by two observers. The two observations were integrated into one record by a summation of the individual recordings. This combination gives a more reliable report than either individual observation. Observations were made of a random sample of one-half of the classes stratified by semesters.

The class typically sat at tables in a hollow square. The observers sat with the group, choosing positions best suited for hearing and seeing the group members. Using a cardboard folder on which the Bales categories were typed and through which recording sheets (see Appendix A) could be slid in such a way that the appropriate minute column and the appropriate squares appeared opposite the categories, the observers recorded the interaction of the group. Only the interaction that occurred when the entire group was assembled was recorded. When the class broke into small groups, had a lecture,

or engaged in role playing the recording was discontinued. It was deemed either excessively difficult or of little consequence to record interaction under these conditions.

The most basic part of the Bales technique, the categories, were used without change. Although not strictly a change, it is pertinent to note that the size of the group observed here was considerably larger than the groups reported by Bales but well within his definition of a "small group" (1, p. 32). The recording system is not one reported by Bales but is well within his theoretical framework. The only real departures from Bales' system is that no double recording was used (each unit of interaction was recorded in only one place) and that larger units of interaction were used (see definitions).

Bibliography

1. Bales, Robert F. Interaction Process Analysis, A Method for the Study of Small Groups. Cambridge: Addison-Wesley Press, Inc., 1951.
2. Thelen, Herbert A. Methods for Studying Work and Emotionality in Group Operation. Chicago: Human Dynamics Laboratory, University of Chicago, 1954.
3. The University Record of the University of Florida, Catalog Issue, 1956-1957, II, Series 1, Number 4.
4. Wiles, Kimball and Ahrens, Maurice. "Statement by Leadership Team," a mimeographed statement about the proposed leadership class, University of Florida, February 7, 1956.

CHAPTER IV

TREATMENT OF THE Q-SORT DATA

It is the purpose in this chapter to report the procedures used in the analysis of the Q-sort data and the relationships of the findings to certain of the hypotheses of the study. It will be noted from Chapter III that these data were obtained by having each principal do the Q-sort twice at the beginning of the leadership course and twice at the end of the course. At each time, the sort was done by the subject about himself and about another specified member of the class. The data from these Q-sorts are found in Appendix B.

The following steps constituted the procedures in analyzing these data:

1. The determination of the index of reliability.
2. Analysis of variance for the purpose of analyzing the self-report data for certain relationships (Hypotheses 1-3).
3. Analysis of variance for the purpose of analyzing the reports on "others" for certain changes (Hypothesis 4).
4. The application of t tests to certain of the data to test for certain changes (Hypotheses 5-9).

These procedures were applied to the data so that the hypotheses were tested in the order that they are listed in Chapter I.

Standard statistical procedures are not described but symbols which are not standard are defined in the descriptions of these procedures.

Instrument Reliability

The Q-sort was given twice to six Hillsborough County principals in order that the reliability of the instrument might be determined for the population of this study. The mean index of reliability among these six subjects for successive administrations of the sort was .769 (see Table 1). Used as an interpretation of the index of reliability, the mean standard error of pile placement was 1.01 where the range of scores was from 1 to 11.

TABLE 1

THE RELIABILITY OF THE Q-SORT ON TWO SUCCESSIVE ADMINISTRATIONS

Person	Index of Reliability (r)	z	Standard Error of Card Placement ^a
A	.737	.9439	1.07
B	.782	1.0505	.98
C	.821	1.1599	.88
D	.569	.6460	1.37
E	.801	1.1014	.93
F	.836	1.2077	.85
Mean	.769	1.0182	1.01

^aThe standard deviation of the Q-sort is 2.09. Standard error equals $\sigma\sqrt{1-r}$

Hypotheses One, Two, and Three

The first three hypotheses were tested with an analysis of variance design. Three main effects were tested:

1. Individual class members. Thirty-four class members were involved in this variable.

2. Time. "Before" and "after" tests constituted the parts of this variable.

3. Categories. Categories consisted of six groupings of ten items each of the item population of the Q-sort (see Appendix A). These groups are descriptive of emotional "modalities" of the self-reports and are integral to the organization of the Q-sort as described in Chapter III.

The following paradigm is descriptive of the analysis of variance design:

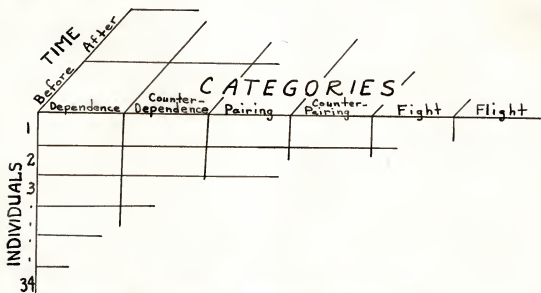


Figure 1--Conceptual scheme of the analysis of variance design for testing Hypotheses One, Two, and Three.

It will be seen that each cell contained ten scores and that there were $34 \times 6 \times 2$ or 408 cells. This resulted in 4079 degrees of freedom, making this a very powerful test. Since the individual Q-sorts had a forced distribution of scores, certain variables were fixed and so could not enter into the explanation of the total variance (see Table 2 for items which have sums of squares equal to zero). The interaction effects are the items that are of interest here for the testing of Hypotheses 1-3.

Hypothesis 1.--School principals enrolled in the leadership class will differ in the way they report their perception of different facets of their respective behavior. For testing purposes, this hypothesis may be reduced to the following first order interaction statement:¹

$$P \times C \neq 0$$

¹The following symbols are used in the mathematical statements of the hypotheses in this chapter:

- P: Individual class member; used as a source of variability for examining the data through the use of an analysis of variance design.
- C: Categories of behavior types (dependence, counter-dependence, etc.) on the Q-sort; used in the same manner as "P" above.
- T: Time before the course and after the course; to be used in the same manner as "P" above.
- S: Q-sort by the subject about himself.
- O: Q-sort by the subject about another person.
- s: A subscript indicating that the Q-sort involved was done by another person about the subject. Subscript numbers indicate the beginning and end of the course.

Interaction between the main effects of Individuals (P) and Categories (C) in the variance design would indicate that different principals characterize themselves differently according to the emotional categories used.

Hypothesis 2.--School principals enrolled in the leadership class will change in a common direction the way they report their perception of their behavior. Reduced to an interaction statement, this hypothesis may be stated:

$$C \times T \neq 0$$

A direct measure of the main effect, Time, cannot be obtained since the forced distribution of the Q-sort items causes the variance due to this factor to equal zero. However, since individuals differ in their original evaluation of categories (Hypothesis 1), any shift in a common direction for the group as a whole must emerge as a Category x Time interaction.

Hypothesis 3.--School principals enrolled in the leadership class will experience differential changes in the way they report their perception of different facets of their behavior. This hypothesis is stated as the second order interaction:

$$P \times C \times T \neq 0$$

Interaction between Individuals, Categories, and Time would indicate that the Q-sort reports by the principals in the leadership class changed with time but not in the same direction and/or amount.

Table 2 summarizes the results of the analysis of variance in testing the first three hypotheses. The F value for $P \times C$ is

equal to 2.41, which is significant beyond the 0.1 per cent level. Hypothesis 1 is therefore substantiated; that is, the principals differed in the way they reported their perception of different facets of their behavior.

TABLE 2
ANALYSIS OF VARIANCE OF Q-SORT ITEM SCORES DONE BY THIRTY-FOUR
PRINCIPALS ABOUT THEMSELVES^a

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Individual (P)	33	0	0	-
Time (T)	1	0	0	-
Category (C)	5	1996	399.20	53.38 ^b
Individual x Time (P x T)	33	0	0	-
Individual x Category (P x C)	165	1234	7.48	2.41 ^b
Time x Category (C x T)	5	27	5.40	1.74
Individual x Time x Category (P x C x T)	165	512	3.10	0.81
Within Subgroups	3672	14047	3.82	-
Total	4079	17816	-	-

^aFor a discussion of the error terms (denominators) used in the calculations of the F ratios in this table, see McNemar (1, pp. 330-331).

^bSignificant beyond the 0.1 per cent level.

The F value for $C \times T$ and $P \times C \times T$ are 1.74 and 0.811 respectively. These values are not significant for the indicated degrees of freedom where one demands a probability of error of less than 5 per cent.¹ Therefore these hypotheses are not supported. The significance of the F ratio for Categories has no relationship to the hypotheses being tested and simply indicates that the groups of items used to denote different emotional categories were scored significantly different by the class as a whole. The self-report Q-sort scores for each individual are presented in Table 3.

Hypothesis Four

School principals enrolled in the leadership course will report their perception of their behavior more nearly like that of an ideal group member after participating in the course than they did prior to the course. Stated in correlations, this hypothesis becomes:

$$\bar{r}_{s_4 I} > \bar{r}_{s_1 I}$$

In the determination of the "Ideal" Q-sort, it was found that the correlation between the two instructors' ideal sorts was .53. The mean index of reliability of these two ideal sorts when measured by sorts done ten months apart was .80.

Since it appeared that there was considerable difference in the expressions of the ideal by the two instructors, the analysis of Hypothesis 4 was done through an analysis of variance design so

¹The maximum probability of error allowed in this study in accepting a hypothesis is 5 per cent.

TABLE 3

DEVIATION SCORES^a FOR THE VARIOUS EMOTIONAL CATEGORIES AS SCORED BY THE PRINCIPALS IN THE LEADERSHIP CLASS ON Q-SORTS ABOUT THEMSELVES BEFORE AND AFTER THE COURSE

Individual	Before				After							
	Depend- ency	Counter Depend- ency	Pairing	Counter Pairing	Fight	Flight	Depend- ency	Counter Depend- ency	Pairing	Counter Pairing	Fight	Flight
103	+7	+1	+14	-10	+1	-13	+5	+11	+12	-19	+11	-20
104	+17	-5	+6	+3	-21	0	+11	-8	+5	+5	-21	+8
105	+11	-4	+9	+4	-18	-2	+11	-6	+3	+3	-15	-2
106	+15	+8	-4	-5	-11	0	+7	0	+2	-4	-6	+1
107	+3	+1	-1	+3	-14	+8	+12	-4	+3	-2	-11	+2
108	+19	-6	+5	+6	-18	-6	+10	-14	+2	+10	-20	+12
109	+7	-4	-2	+2	-10	+6	+13	0	0	-1	-16	+4
110	+10	+2	0	+1	-16	+3	+13	-2	0	0	-12	+1
111	+10	-2	+6	-1	-10	-3	+5	-11	+15	-8	-8	+7
112	+19	+3	-5	-1	-12	-4	-2	+4	+11	+4	-16	-1
113	+6	+4	+4	+1	-19	+4	+4	+9	-5	+4	-20	+8
114	+9	-8	-6	+15	-17	+7	+17	-11	-6	+9	-14	+5
115	+11	-4	+3	+10	-21	+1	+5	-10	-3	+14	-17	+11
116	+9	0	+1	+3	-13	0	+7	-2	-3	+1	-8	+5
117	0	0	-6	+17	-13	+2	+17	-9	+1	+3	-12	0
118	+11	-13	0	+2	-16	+16	+2	-19	+1	+10	-11	+17
119	+2	-6	+15	-5	-13	+7	+9	+1	-4	+3	-16	+7
120	+8	-8	-3	+14	-23	+12	+8	-13	-5	+12	-14	+12

TABLE 3--Continued

	Before				After						
	Indi- vidual	Depend- ency	Counter Depend- ency	Pairing	Counter Pairing	Flight	Depend- ency	Counter Depend- ency	Pairing	Counter Pairing	Flight
121	+13	-2	+14	0	-23	-2	+17	-9	+13	-3	+1
122	+14	-3	0	+3	-19	+5	+18	-14	+3	+7	+5
123	+3	-5	-5	+3	-5	+9	+16	-8	-6	+3	+4
124	+15	-3	+2	+5	-23	+4	+14	-11	+10	+1	+5
125	+16	-10	+6	+5	-15	-2	+15	-13	-4	+6	+14
126	+8	-2	-7	0	-7	+8	+11	-2	+1	+4	+5
127	+9	-6	0	+6	-18	+9	+11	-12	+3	+10	+11
128	+13	+1	-1	+1	-21	+7	-8	+2	+2	-8	-8
129	+13	+3	-7	+2	-12	+1	+12	-4	+1	+3	-2
130	+4	+5	+5	-2	-11	-1	+3	-4	+6	-9	-1
131	+7	-7	+12	+8	-25	+5	+10	-5	+13	+5	-23
132	+2	+7	+12	+4	-13	-12	+14	-8	+4	+7	0
133	-4	+6	-6	-1	-2	-7	+3	+5	-1	-3	-3
134	+13	+2	+2	0	-18	+1	+17	+3	-6	+1	-0
135	+8	-11	+6	+17	-17	-3	-2	+3	+4	-1	-15
136	-1	+13	0	-2	-9	-1	+10	+5	-4	+3	+9
Mean	+8.94	-1.56	+2.06	+3.18	-11.76	+2.15	+9.26	-4.35	+2.18	+2.06	-12.32
											+3.18

$a'_x = -1(X - \bar{X})$. Positive scores indicate that the subject scored the emotional category as characterizing his behavior; negative, as not characterizing his behavior. The size of a deviation score indicates the degree to which the subject said the category characterized his behavior.

that any differential influence that the two instructors might have on the class members could be determined. Three factors were present in this design which, along with their interaction, might have accounted for any variance. These were:

1. Individuals
2. Time
3. Instructors

Correlations between the ideal Q-sorts by each instructor and the Q-sorts by each individual before and after the course were calculated. These correlations were then transformed into the linear measure, \underline{z}^1 (see Table 4). After certain manipulations (the addition of a constant to remove negative values), the \underline{F} ratios were computed by analysis of variance (Table 5).

It will be noted that the \underline{F} ratio for Time is not significant. Therefore Hypothesis 4 is not substantiated since there is no significant difference between the correlations of the self and the ideal Q-sorts before and after the course. Although there is no group change, differential individual changes did occur (Interaction between Individual and Time is significant) which would indicate that significant changes occurred for some individuals. Since the group change was not significant, it may be concluded that the individual changes were not in a common direction. There was no significant difference in the apparent influences of the two instructors' stated ideals because

$$\underline{z}^1 = \frac{1}{2} \log_e \frac{1+r}{1-r}$$

TABLE 4

Z VALUES BETWEEN IDEAL Q-SORTS BY EACH INSTRUCTOR AND Q-SORTS BY EACH CLASS MEMBER ABOUT HIMSELF BEFORE AND AFTER THE LEADERSHIP COURSE

Individual	Before		After	
	Instructor "A"	Instructor "B"	Instructor "A"	Instructor "B"
103	0.266	0.127	0.023	-0.290
104	.393	.336	.657	.560
105	.448	.539	.505	.461
106	.539	-.198	.481	.262
107	.692	.513	.307	.495
108	.485	.328	.509	.456
109	.505	.456	.393	.166
110	.398	.415	.692	.359
111	.398	.209	.138	.205
112	.367	.345	.443	.249
113	.652	.490	.675	.592
114	.607	.698	.481	.524
115	.753	.586	.634	.530
116	.581	.500	.509	.328
117	.398	.402	.189	.245
118	.324	.596	.481	.728
119	.266	.398	.524	.402
120	.564	.640	.415	.514
121	.461	.229	.269	.294
122	.433	.443	.480	.570
123	.198	.438	.237	.448
124	.685	.601	.581	.570
125	.253	.315	.433	.471
126	.420	.388	.359	.466
127	.539	.535	.490	.774
128	.692	.634	-.524	-.717
129	.367	.278	.411	.294
130	.174	.174	-.166	.095
131	.663	.711	.634	.618
132	.084	.019	.123	.161
133	.324	.345	.095	.170
134	.415	.222	.430	.225
135	.592	.570	.317	.282
136	.262	.131	.560	.388
Mean	.447	.395	.407	.350

TABLE 5

ANALYSIS OF VARIANCE OF \bar{g} VALUES BETWEEN TWO IDEAL Q-SORTS AND Q-SORTS
BY THIRTY-FOUR PRINCIPALS ABOUT THEMSELVES BEFORE AND
AFTER THE LEADERSHIP COURSE

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Individual	33	3.227	0.09779	-
Time	1	0.06112	0.06112	1.55
Instructor	1	0.1019	0.1019	3.36
Individual x Time	33	1.299	0.03938	2.13 ^a
Individual x Instructor	33	0.9999	0.03030	1.64
Instructor x Time	1	0.000173	0.000173	0.009
Instructor x Time x Individual	33	0.6092	0.01846	
Total	135	6.299		

^a Significant between the five per cent and one per cent levels.

the F value for Instructor was not significant for the indicated degrees of freedom at the accepted probability of error. It may, therefore, be concluded that the influence of the instructors' ideals did not have differing effects upon the reports of the subjects.

Hypothesis Five

School principals enrolled in the leadership course will report their perception of other class members more nearly like that of an ideal group member after participating in the course than they

did prior to the course. Stated mathematically, this hypothesis becomes:

$$\bar{r}_{0,I} > \bar{r}_{0,I}$$

A composite ideal Q-sort was produced by adding the scores (pile numbers) assigned to each item by the two instructors. This ideal sort was then correlated¹ with the sorts done by the class members about another person before and after the course. The resulting correlations were converted to a linear statistic (z) and the difference between the After and Before results taken. These differences were then tested by a t test² for significance (see Table 6). This statistic was used since the correlations from the same subject were probably correlated.

The t of -0.82, obtained for this comparison, is not significant.³ It is therefore concluded that the class members' reported perception of others did not change during the course with reference to the instructors' "ideal."

¹From inspection of the scatter diagrams of the relationships between the Q-sorts it is seen that these appear to be linear. Therefore, r is an appropriate measure.

$$^2 \quad t = \frac{\frac{\sum D}{N}}{\frac{\sigma_D}{\sqrt{N-1}}} = \frac{(\sum D)(\sqrt{N-1})}{\sqrt{N\sum D^2 - (\sum D)^2}}$$

³ $t_{.05(d.f.=33)} = \pm 1.69$. This value will apply to Hypotheses 5-9.

TABLE 6

z VALUES BETWEEN AN IDEAL Q-SORT AND Q-SORTS BY CLASS MEMBERS ABOUT
ANOTHER CLASS MEMBER BEFORE AND AFTER THE LEADERSHIP COURSE

Individual	z Values		
	Before	After	Difference (After-Before)
103	0.087	0.028	-0.059
104	.431	.600	.169
105	.585	-.394	-.979
106	.245	.306	.061
107	.651	.259	-.392
108	.525	.679	.154
109	.289	.359	.070
110	.608	.603	-.005
111	.212	.315	.103
112	.387	.116	-.271
113	.531	.271	-.260
114	.696	.710	.014
115	.765	.673	.092
116	.400	.323	-.077
117	.518	.521	.003
118	.490	.042	-.448
119	.358	.567	.209
120	.100	.233	.133
121	.130	.233	.103
122	-.323	.096	.419
123	.500	.585	.085
124	.660	.428	-.231
125	.179	-.107	-.286
126	-.130	.315	.445
127	.504	.578	.074
128	.462	.540	.078
129	.296	.446	.150
130	-.037	.360	.397
131	.772	.728	-.044
132	.092	.233	.141
133	-.364	.113	-.251
134	.412	-.037	-.449
135	.543	.280	-.263
136	.431	.375	-.056
Mean	.374	.335	-.040

$$\Sigma D = -1.355$$

$$\Sigma D^2 = 2.682$$

$$t = -0.82$$

Hypothesis Six

School principal "i" enrolled in the leadership course will report his perception of his behavior more nearly like principal "j" reports his perception of his behavior after the course than he did before the course. The inequality for testing this hypothesis is:

$$\bar{r}_{S_i S_j} > \bar{r}_{S_i S_j} \text{ when } i \neq j$$

Correlations were calculated between the Q-sorts done by the subjects about themselves so that each sort was correlated with two other sorts chosen at random. This random pairing procedure was followed for both the "before" and "after" sorts. Each sort was used twice and only twice. The resulting correlations were converted to z's and tested by the t test of differences to determine whether or not there existed a difference between the two sets of data (see Table 7). A t of -1.29 was obtained which is not significant and thus the hypothesis is not substantiated. It is therefore concluded that there was no difference, before and after the course, in the degree to which the various principals' reported perception of themselves was alike.

TABLE 7

z VALUES BETWEEN Q-SORTS DONE BY TWO CLASS MEMBERS ABOUT
THEMSELVES BEFORE AND AFTER THE LEADERSHIP COURSE

Individuals	<u>z</u> Values		
	Before	After	Difference (After-Before)
103 - 135	.096	.166	.070
104 - 134	.411	.514	.103
105 - 128	.433	-.406	-.839
106 - 133	.430	.135	-.295
107 - 118	.580	.456	-.124
108 - 111	.359	.476	.117
109 - 103	.289	.057	-.232
110 - 125	.201	.476	.275
111 - 121	.466	.333	-.133
112 - 132	-.004	.282	.286
113 - 109	.453	.245	-.208
114 - 117	.425	.278	-.147
115 - 110	.466	.570	.104
116 - 124	.863	.544	-.319
117 - 122	.336	.398	.062
118 - 126	.245	.438	.193
119 - 116	.349	.380	.031
120 - 104	.425	.341	-.084
121 - 107	.514	.448	-.066
122 - 129	.345	.456	.111
123 - 106	.328	.393	.065
124 - 108	.618	.354	-.264
125 - 136	.127	.505	.378
126 - 131	.430	.481	.051
127 - 114	.871	.722	-.149
128 - 113	.438	-.471	-.909
129 - 115	.294	.406	.112
130 - 123	.008	.411	.403
131 - 127	.686	.623	-.063
132 - 130	.388	-.011	-.399
133 - 119	.299	.034	-.265
134 - 112	.269	.269	.000
135 - 120	.575	.380	-.195
136 - 105	.185	.359	.174
Mean	.388	.325	-.063
$\Sigma D = -2.156$			
$\Sigma D^2 = 2.852$			
$t = -1.29$			

Hypothesis Seven

School principal "i" enrolled in the leadership course will report his perception of the behavior of principal "j" more nearly like principal "m" reports his perception of principal "n" after the course than he did before the course. The inequality used for testing this hypothesis is:

$$\bar{r}_{0_i 0_{j_4}} > \bar{r}_{0_i 0_{j_1}} \text{ when } i \neq j$$

Using the same random procedure as in hypothesis six, the Q-sorts done by the class members about other persons in the class were analyzed for any difference between their correlations before and after the course (see Table 8). This test yields a \underline{t} of -0.71 which is not significant and so the hypothesis is not demonstrated. This means that there was no difference in the "alikeness" of the various principals' reported perception of other class members before and after the class.

Hypothesis Eight

School principal "i" enrolled in the leadership course will report his perception of his behavior more nearly like "j" reports his perception of "i's" behavior after the course than before. Stated mathematically, this hypothesis is:

$$\bar{r}_{S_4 0_{s_4}} > \bar{r}_{S_1 0_{s_1}}$$

The Q-sort done by each subject about himself was correlated with the sort done by someone else about him. This process was

TABLE 8

z VALUES BETWEEN Q-SORTS DONE BY TWO CLASS MEMBERS ABOUT OTHER CLASS MEMBERS BEFORE AND AFTER THE LEADERSHIP COURSE

Individuals	<u>z</u> Values		
	Before	After	Difference (After-Before)
103 - 135	.324	.131	-.193
104 - 134	.425	.119	-.306
105 - 128	.704	.034	-.670
106 - 133	.107	-.046	-.153
107 - 118	.453	.138	-.315
108 - 111	.315	.312	-.003
109 - 103	.393	.031	-.362
110 - 125	.042	.181	.139
111 - 121	.080	.514	.434
112 - 132	.092	.065	-.027
113 - 109	.380	.345	-.035
114 - 117	.544	.380	-.164
115 - 110	.456	.490	.034
116 - 124	-.027	.262	.289
117 - 122	-.154	.225	.379
118 - 126	-.023	.333	.356
119 - 116	.367	.320	-.047
120 - 104	.146	.233	.087
121 - 107	.257	.253	-.004
122 - 129	.095	.549	.454
123 - 106	.299	.411	.112
124 - 108	.586	.535	-.051
125 - 136	-.217	-.273	-.056
126 - 131	-.237	.270	.507
127 - 114	.774	.394	-.380
128 - 113	.456	.319	-.137
129 - 115	.189	.266	.077
130 - 123	.088	.406	.318
131 - 127	.646	.376	-.270
132 - 130	-.269	-.011	.258
133 - 119	.367	.100	-.267
134 - 112	.425	.065	-.360
135 - 120	.015	.111	.096
136 - 105	.858	-.294	-1.152
Mean	.263	.219	-.042
$\Sigma D = -1.412$			
$\Sigma D^2 = 3.863$			
$t = -0.71$			

applied to both the "Before" and "After" data. As before, these correlations were converted to z 's and a t test applied to the differences between the "Before" and "After" data (see Table 9). The resulting t of -0.33 is not significant and so the hypothesis was not supported. It is concluded that there was no difference before and after the course in the similarity between the Q-sort that a subject did about himself and the Q-sort done about him by another person.

Hypothesis Nine

School principal "i" enrolled in the leadership course will report his perception of his behavior and the behavior of principal "j" as being more nearly alike after the course than before. This hypothesis may be represented by the following inequality:

$$\bar{r}_{S_4 O_4} > \bar{r}_{S_1 O_1}$$

In order to test this hypothesis, the Q-sort done by each principal about himself was correlated with the sort done by him about the other person both before and after the course. The resulting data were treated as in the tests of the preceding hypothesis (see Table 10). The resulting t of -0.70 was not significant. The hypothesis is not substantiated and thus there was no difference before and after the course in the similarity of Q-sorts by a person about himself and about another class member.

TABLE 9

z VALUES BETWEEN A Q-SORT DONE BY A SUBJECT ABOUT HIMSELF AND A Q-SORT
DONE BY ANOTHER PERSON ABOUT THE SUBJECT BEFORE AND AFTER THE COURSE

Individual	z Values		
	Before	After	Difference
103	.154	.092	-.062
104	.099	.229	.130
105	.262	.560	.298
106	.524	-.027	-.551
107	.237	.269	.032
108	.514	.425	-.089
109	.380	.217	-.163
110	.448	.181	-.267
111	.452	.189	-.263
112	.324	.194	-.130
113	.433	.294	-.139
114	.800	.166	-.634
115	.046	.570	.524
116	.691	.668	-.023
117	.358	.354	-.004
118	.495	.393	-.102
119	.245	.354	.109
120	.485	-.027	-.512
121	.456	.346	-.110
122	.580	.544	-.036
123	.031	.490	.459
124	.592	.535	-.057
125	.189	.753	.564
126	.443	.453	.010
127	.657	.987	.330
128	.607	-.127	-.734
129	-.189	.354	.543
130	.294	.154	-.140
131	-.019	.406	.425
132	.131	.138	.007
133	.257	.053	-.204
134	.544	.201	-.343
135	-.165	.253	.418
136	.193	.229	.036
Mean	.339	.320	-.020

$$\Sigma D = -.678$$

$$\Sigma D^2 = 3.610$$

$$t = -0.33$$

TABLE 10

z VALUES BETWEEN Q-SORTS DONE BY CLASS MEMBERS ABOUT THEMSELVES AND ABOUT OTHER MEMBERS BEFORE AND AFTER THE COURSE

Individual	<u>z</u> Values		
	Before	After	Difference (After-Before)
103	.119	.500	.381
104	.879	.926	.047
105	.780	-.174	-.954
106	.822	.807	-.015
107	.786	.500	-.286
108	.835	.519	-.316
109	.290	.607	.317
110	.822	1.875	1.053
111	.379	.415	.036
112	.371	.349	-.022
113	.996	.004	-.992
114	1.082	1.043	-.039
115	1.246	1.208	-.038
116	.425	.505	.080
117	.560	.178	-.382
118	.698	.119	-.579
119	.425	.686	.261
120	.115	.564	.449
121	.266	.741	.475
122	-.500	.336	.836
123	.887	.857	-.030
124	.860	.711	-.149
125	.023	-.398	-.421
126	.115	.996	.881
127	1.003	.607	-.396
128	.484	-.722	-1.206
129	.668	.564	-.104
130	.123	.519	.396
131	1.061	.879	-.182
132	1.367	.333	-1.034
133	.319	.185	-.134
134	.717	.389	-.328
135	.544	.601	.057
136	.266	.471	.205
Mean	.583	.521	-.063
$\Sigma D = -2.133$			
$\Sigma D^2 = 9.148$			
$t = -.70$			

Summary

It was found in the analysis of the Q-sort data that what the principals said about themselves and about others did not change during the leadership class. It will be noted that different principals reported their perception of their behavior differently (Hypothesis 1). This could have been predicted from the psychological tenet that individuals are different. For the class as a whole no change was found to occur in the following areas:

1. The way the subjects reported their perception of their behavior (Hypotheses 2 and 3).
2. The degree to which the subjects reported perception of their behavior coincided with that of an "ideal" group member (Hypothesis 4).
3. The degree to which the subjects reported perception of the behavior of other group members coincided with that of an "ideal" group member (Hypothesis 5).
4. The "alikeness" of the reported self-perceptions of the various class members (Hypothesis 6).
5. The "alikeness" of the reported perceptions of the subjects about other class members (Hypothesis 7).
6. The degree to which a subject's reported self-perception is like the report of another class member about him (Hypothesis 8).
7. The degree to which a subject's self-perception is like his perception of another class member (Hypothesis 9).

It was incidentally found that certain class members changed in their nearness to the instructors' ideal. Although these changes were significant for individuals, the group change was not significant indicating that the individual changes were in different directions.

Bibliography

1. McNemar, Quirm. Psychological Statistics. New York: John Wiley and Sons, 1955.
2. Peters, Charles C. and VanVoorhis, Walter R. Statistical Procedures and Their Mathematical Bases. New York: McGraw-Hill Book Company, 1940.
3. Walker, Helen M. and Lev, Joseph. Statistical Inference. Henry Holt and Company, 1953.
4. Wert, James E., Neidt, Charles O., and Ahmann, J. Stanley. Statistical Methods in Educational and Psychological Research. New York: Appleton-Century-Crofts, Inc., 1954.

CHAPTER V

TREATMENT OF THE OBSERVATIONAL DATA

It is the purpose in this chapter to outline the procedures used in analyzing the observational data collected in the study for testing certain of the hypotheses. These data consist of the recordings made of a sample of the class sessions by two observers using the procedures recommended by Robert F. Bales (1). A summary of these raw data by course quarters will be found in Appendix B.

The following steps constituted the procedures in analyzing these data:

1. The determination of the reliability of the observations.
2. The calculation of t values for "C" correlated sets" to determine whether or not certain changes occurred (Hypotheses 10-14).
3. The calculation of correlations between certain observational and Q-sort data to determine whether or not certain relationships existed (Hypotheses 15-17).

The reporting procedures are the same as those used in Chapter

IV.

Reliability of the Observations

In order that observer reliability might be checked, two observers made independent observations of the selected classes.

Reliability coefficients were calculated for these observations to determine the agreement in the placement of interactions in categories and to determine the agreement in the assignment of interaction to individuals. Table 11 gives these coefficients for each quarter of the course along with standard deviations as further interpretative data.

Hypothesis Ten

In the leadership class composed of school principals the total number of units of interaction per individual per unit time will increase or remain constant as time spent in the course increases. For testing purposes, this hypothesis may be stated:¹

$$U_{i_4} \geq U_{i_3} \geq U_{i_2} \geq U_{i_1}$$

¹The following symbols are used in the mathematical statements of the hypotheses in this chapter:

- U: Total interactions per unit time (hour) as recorded on the Bales Interaction check list.
- M: Proportion of interaction by an individual on the Bales Interaction check list.
- Q: Proportion of negative behavior on the Bales Interaction check list.
- R: Proportion of interaction directed toward the instructors by students on the Bales Interaction check list.
- c: Proportion of units of behavior in each of the various non-negative categories (1-9) on the Bales Interaction check list. Subscript numbers indicate the respective quarters of the course.

TABLE 11

RELIABILITY COEFFICIENTS (WITH STANDARD DEVIATIONS) BETWEEN OBSERVER "A" AND OBSERVER "B" FOR THE NUMBER OF INTERACTIONS RECORDED IN THE VARIOUS BALES CATEGORIES AND FOR THE NUMBER OF INTERACTIONS IDENTIFIED FOR EACH CLASS MEMBER DURING THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

	Interactions Per Category		Interactions per Individual	
	<u>r</u>	<u>S.D.</u>	<u>r</u>	<u>S.D.</u>
First Quarter	.969	110.4	.993	51.7
Second Quarter	.980	167.4	.995	60.5
Third Quarter	.986	145.9	.990	38.9
Fourth Quarter	.981	117.8	.987	28.6

In the testing of this hypothesis, the units of interaction made by each subject per hour he was observed were calculated for each quarter of the course (see Table 12). Since the distributions of these units are correlated between the course quarters, a median test of "C" correlated sets¹ was used. This nonparametric test produced a chi-square (χ^2) value² of 25.8 for the over-all distribution of scores.

¹For a discussion of the procedures used in this test see McNemar (2, pp. 358-359).

$$\chi^2 = \frac{c(c-1)}{RA(c-A)} \sum (T_c - \frac{RA}{c})^2$$

When:

C = Number of conditions

R = Individuals or sets

A = $\frac{c}{2}$ (c even) or $\frac{c-1}{2}$ (c odd)

T_c = Number of +'s in cth column

TABLE 12

UNITS OF INTERACTION PER HOUR BY MEMBERS OF THE LEADERSHIP CLASS DURING
THE RESPECTIVE QUARTERS OF THE COURSE

Individuals	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
103	18.3	7.8	18.4	24.9
104	16.6	7.1	10.1	19.5
105	12.1	19.1	11.9	21.2
106	6.2	11.9	6.1	17.8
107	13.8	20.9	39.7	37.6
108	1.7	5.3	23.8	12.0
109	12.4	29.9	27.7	18.3
110	9.6	17.0	6.1	13.4
111	6.8	23.9	6.6	21.2
112	16.2	10.2	19.2	9.2
113	4.5	3.0	6.8	17.5
114	16.3	22.7	28.2	39.4
115	17.5	16.5	27.8	20.7
116	34.1	35.8	42.7	46.1
117	0.8	12.7	26.0	37.6
118	3.1	1.9	4.1	7.3
119	22.5	23.1	21.4	39.0
120	14.4	21.4	43.4	16.0
121	1.1	3.3	31.9	3.4
122	12.4	3.2	13.6	14.9
123	4.8	15.5	12.1	16.7
124	17.5	24.4	4.9	44.8
125	3.9	2.6	33.2	5.7
126	4.2	4.9	9.9	14.4
127	2.0	3.8	4.2	10.7
128	3.9	10.0	14.3	16.8
129	1.7	6.8	8.2	7.4
130	1.4	4.9	2.7	15.6
131	7.9	7.4	15.8	22.8
132	4.5	4.0	4.1	25.4
133	60.3	33.0	62.8	3.0
134	6.8	4.7	24.7	29.8
135	6.4	15.7	7.0	14.1
136	52.8	64.2	49.0	40.6
Mean	12.3	14.7	19.7	20.7

With three degrees of freedom (for four quarters) this value is significant beyond the 0.1 per cent level. From inspection of the data in Table 12 it is seen that the change is in the direction of increasing interaction.

A more detailed analysis of the change in amount of interaction from quarter to quarter may be seen in Table 13. Here, the data are examined for significant changes between the various combinations of quarters. It will be seen that no significant change occurred between the first and second quarter but that significant increases in interaction occurred between the second and third, and the third and fourth quarters.

TABLE 13

CHI SQUARE VALUES DERIVED FROM A CORRELATED SET MEDIAN TEST OF THE INTERACTION PER HOUR PER INDIVIDUAL BETWEEN THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE^a

	Second Quarter	Third Quarter	Fourth Quarter
First Quarter	2.94	5.76 ^b	19.88 ^d
Second Quarter	--	4.24 ^b	9.53 ^c
Third Quarter		--	4.24 ^b

^aFor the comparisons of combinations of two quarters as in this table and in succeeding tables, chi-square is significant at the 5 per cent confidence level (d.f.=1) when it is equal to or greater than 3.8.

^bSignificant between the 5 per cent and the 1 per cent levels.

^cSignificant between the 1 per cent and the 0.1 per cent levels.

^dSignificant beyond the 0.1 per cent level.

The substantiation of the hypothesis indicates that the total amount of interaction increased steadily during the course. From this it may be argued that the interest and involvement of the class members increased and that freedom of expression was not suppressed. The support of this hypothesis will also lend meaning to certain of the other hypotheses in the event they are substantiated.

Hypothesis Eleven

In the leadership class composed of school principals the variance in the proportion of units of interaction by each individual will decrease as time spent in the course increases. This hypothesis may be mathematically represented by:

$$\sigma_{M_1}^2 > \sigma_{M_2}^2 > \sigma_{M_3}^2 > \sigma_{M_4}^2$$

In analyzing the data for testing this hypothesis, the proportion of the total interaction recorded for each individual during each quarter of the course was calculated (see Table 14). Proportions were used rather than the units of interaction per individual to prevent the increase in mean interaction from influencing the variance. It will be noted from Table 11 that the standard deviation of the total units of interaction per individual increased from 51.7 in the first quarter to 60.5 in the second quarter. It might be inferred from this that the variation in amount of interaction per individual increased during the second quarter. A closer analysis (see Table 14), however, reveals that this increase in standard deviation is due to an increase

TABLE 14

PROPORTION OF TOTAL INTERACTION BY EACH MEMBER DURING THE RESPECTIVE
 QUARTERS OF THE LEADERSHIP COURSE

Individual	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
103	0.0318	0.0163	0.0217	0.0380
104	.0437	.0112	.0097	.0220
105	.0318	.0402	.0217	.0324
106	.0163	.0251	.0110	.0272
107	.0363	.0323	.0601	.0544
108	.0044	.0084	.0433	.0184
109	.0326	.0629	.0504	.0280
110	.0252	.0359	.0110	.0204
111	.0178	.0482	.0119	.0324
112	.0333	.0163	.0292	.0120
113	.0118	.0064	.0124	.0268
114	.0429	.0359	.0513	.0516
115	.0770	.0347	.0278	.0316
116	.0896	.0753	.0557	.0704
117	.0022	.0267	.0473	.0424
118	.0081	.0040	.0075	.0112
119	.0592	.0486	.0247	.0596
120	.0377	.0450	.0791	.0244
121	.0030	.0052	.0415	.0104
122	.0326	.0068	.0247	.0168
123	.0126	.0327	.0221	.0188
124	.0459	.0514	.0088	.0684
125	.0074	.0040	.0433	.0064
126	.0111	.0143	.0150	.0220
127	.0052	.0080	.0049	.0164
128	.0074	.0211	.0261	.0256
129	.0030	.0143	.0124	.0084
130	.0030	.0104	.0018	.0176
131	.0207	.0155	.0287	.0348
132	.0118	.0084	.0075	.0332
133	.1236	.0693	.0605	.0012
134	.0118	.0100	.0247	.0336
135	.0074	.0243	.0128	.0216
136	.0918	.01351	.0893	.0620
Variance	0.00083118	0.00070967	0.00046656	0.00030546

in the mean interaction and does not signify a significant increase in the variability of proportion of interaction per individual.

The distributions of variances for the four quarters are correlated since they are essentially repetitions of tests for a given sample. Therefore the statistic,

$$t = \frac{(S_2^2 - S_1^2)\sqrt{N-2}}{2S_1S_2\sqrt{1-r_{1,2}^2}}$$

for correlated variances is used in testing the data for change in variance.¹ Table 15 shows the relationships of the various quarters of the course with reference to change in the variance of the proportion of interaction per individual.

TABLE 15

t VALUES BETWEEN VARIANCES OF THE PROPORTIONS OF INTERACTION PER INDIVIDUAL FOR THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

	Second Quarter	Third Quarter	Fourth Quarter
First Quarter	0.68	1.97 ^a	3.21 ^b
Second Quarter	--	1.54	2.96 ^b
Third Quarter		--	1.26

^aSignificant between the 5 per cent and 1 per cent levels.

^bSignificant between the 1 per cent and 0.1 per cent levels.

¹For a discussion of the use of this statistic see Walker and Lev (5, pp. 190-191).

It will be noted from the preceding table that no significant changes occurred between adjacent quarters but that all greater spans of time showed significant changes. Inspection of the data in Table 14 reveals that these changes are in the direction of decreasing variance. The hypothesis is thus generally substantiated, although changes from a quarter to the succeeding quarter are not significant.

It is thus indicated that the deviation in amount of interaction per individual decreased during the leadership course. Those people who spoke the most at the beginning of the course tended to react less and those who said little at the beginning tended to react more. The over-all result was that of more evenly divided participation among the class members.

Hypothesis Twelve

In the leadership class composed of school principals the proportion of units of behavior characterized as "negative" per individual will decrease as time spent in the course increases. In terms of the data, this hypothesis may be stated as:

$$Q_{i_1} > Q_{i_2} > Q_{i_3} > Q_{i_4}$$

In the analysis of Hypothesis 12, the proportion that each person's negative behavior (Bales' categories 10-12) was of his total volume of interaction for each quarter was calculated (see Table 16). These proportions were then tested for change through the use of the median test of correlated sets described earlier. It was found that chi square for over-all change was 21.71. This value for three degrees

TABLE 16

PROPORTIONS OF NEGATIVE BEHAVIOR FOR EACH CLASS MEMBER DURING
THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

Individual	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
103	0.186	0.707	0.408	0.105
104	.576	.429	.364	.382
105	.302	.257	.286	.062
106	.591	.730	.880	.265
107	.449	.358	.199	.235
108	.167	.571	.092	.022
109	.957	.228	.105	.129
110	.353	.222	.320	.255
111	.292	.215	.148	.123
112	.289	.366	.121	.400
113	.000	.188	.107	.060
114	.293	.289	.181	.233
115	.067	.414	.079	.405
116	.116	.169	.238	.097
117	1.000	.119	.028	.000
118	.818	1.000	.765	.179
119	.350	.475	.357	.141
120	.392	.319	.101	.443
121	1.000	.846	.106	.115
122	.023	.647	.143	.262
123	.412	.537	.300	.043
124	.129	.176	.300	.041
125	1.000	.800	.143	.125
126	.933	.846	.265	.145
127	.143	.400	.455	.195
128	.200	.189	.017	.063
129	1.000	.750	.071	.095
130	.500	.923	.750	.273
131	.964	.615	.200	.276
132	.750	.286	1.000	.084
133	.174	.201	.277	.333
134	.125	.200	.036	.083
135	1.000	.377	.414	.333
136	.258	.324	.272	.355
Mean	.465	.446	.280	.187

of freedom is significant beyond the 0.1 per cent level of significance. A quarter-by-quarter analysis of this change is summarized in Table 17.

TABLE 17

CHI SQUARE VALUES DERIVED FROM MEDIAN TESTS OF CORRELATED SETS
OF PROPORTIONS OF NEGATIVE BEHAVIOR BY EACH CLASS MEMBER
DURING THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

	Second Quarter	Third Quarter	Fourth Quarter
First Quarter	0.12	1.06	7.53 ^a
Second Quarter	--	7.53 ^a	16.94 ^b
Third Quarter		--	0.48

^aSignificant between the 1 per cent and 0.1 per cent levels.

^bSignificant beyond the 0.1 per cent level.

An examination of the data reveals that the proportion of negative behavior increased during the second quarter. Table 17, however, shows that the size of the increase was not significant. Significant changes during the third and fourth quarters were in the direction of a decreasing proportion of negative behavior. It should be noted, however, that a significant decrease in the proportion of negative behavior from the first quarter did not occur until the fourth quarter. The hypothesis is thus supported with the exception of the portions referring to the change from the first to the second quarter of the course and to the change from the first to the third quarter of the course.

The sequence of change is that of a slight increase in negative behavior between the first and second quarters and a decrease in negative behavior between the second and third, and the third and fourth quarters. The over-all result is a significant decrease in negative behavior from the beginning to the end of the course. It might be hypothesized that the manner in which the class was conducted gave the subjects freedom to exhibit negative behavior but that this freedom did not become apparent until a period of time had passed. Then, as the class progressed, the negative behaviorisms proved fruitless to those using them or the frustrations causing them were dissipated and resolved and more positive behavior patterns came into use.

Hypothesis Thirteen

In the leadership class composed of school principals the proportion of units of interaction per student directed to the instructors will become smaller as time in the course increases. This hypothesis may be stated in terms of the data by the inequality:

$$R_{i_1} > R_{i_2} > R_{i_3} > R_{i_4}$$

In the analysis of this hypothesis, the proportion of behavior directed to an instructor by each student during each quarter of the course was calculated (see Table 18). The median test of correlated sets was then applied to these data. This test resulted in a chi-square value of 25.8 (significant beyond the 0.1 per cent level) for change among the four quarters. An inspection of the data reveals

TABLE 18

PROPORTION OF INTERACTION DIRECTED TO THE INSTRUCTORS BY EACH CLASS MEMBER DURING THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

Individual	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
103	0.395	0.049	0.327	0.000
104	.339	.464	.000	.073
105	.093	.406	.429	.062
106	.636	.143	.160	.044
107	.510	.222	.022	.088
108	.667	.143	.194	.043
109	.477	.259	.184	.014
110	.588	.467	.200	.059
111	.458	.083	.037	.062
112	.222	.439	.106	.000
113	.375	.625	.107	.015
114	.483	.144	.121	.016
115	.740	.437	.825	.101
116	.628	.349	.349	.057
117	.333	.090	.037	.009
118	.545	.000	.000	.321
119	.275	.270	.179	.121
120	.157	.134	.162	.016
121	.250	.154	.128	.192
122	.409	.000	.143	.000
123	.059	.293	.040	.447
124	.565	.597	.450	.041
125	.100	.200	.153	.125
126	.600	.077	.118	.000
127	.143	.500	.455	.000
128	.700	.434	.525	.109
129	.500	.250	.286	.048
130	.000	.077	.000	.409
131	.607	.308	.000	.253
132	.250	.381	.000	.108
133	.407	.201	.431	.000
134	.563	.480	.232	.321
135	.900	.393	.379	.037
136	.774	.147	.158	.245
Mean	.434	.271	.204	.101

that this change was a decrease in the proportion of interaction directed to the instructors. When analyzed more minutely for change between the various combinations of quarters, it was found that a significant reduction of the proportions occurred between each quarter except from the second to the third (see Table 19). The hypothesis is thus substantiated except for the part mentioned above.

TABLE 19

CHI SQUARE VALUES DERIVED FROM MEDIAN TESTS OF CORRELATED SETS OF PROPORTIONS OF INTERACTION DIRECTED TO THE INSTRUCTORS BY CLASS MEMBERS DURING THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

	Second Quarter	Third Quarter	Fourth Quarter
First Quarter	5.76 ^a	13.36 ^b	23.06 ^b
Second Quarter	--	2.00	16.03 ^b
Third Quarter		--	4.24 ^a

^aSignificant between the 5 per cent and 1 per cent levels.

^bSignificant beyond the 0.1 per cent level.

Since the hypothesis above indicates that there was a continuous reduction of the interaction directed to the instructors and Hypothesis 1 shows an increase in total interaction, it follows that the class members were speaking more and more to each other. This is accepted as an indication that the direction of class activities and participation in these activities became less centered about the instructors and that the group, therefore, was more independent and self-directing.

Hypothesis Fourteen

In the leadership class composed of school principals the principal will exhibit, individually, a greater variety of kinds of nonnegative behavior as time spent in the course increases. Stated mathematically, this hypothesis is:

$$\sigma_{c_1}^2 > \sigma_{c_2}^2 > \sigma_{c_3}^2 > \sigma_{c_4}^2$$

The analysis of this hypothesis proceeded in three steps:

1. The calculation of the proportion of behavior recorded in each nonnegative category on the Bales check list for each class member during each quarter of the course. This was done by the formula,

$$c_1 = \frac{\text{No. units of interaction in category 1 for individual 1}}{\text{No. units of interaction in categories 1-9 for individual 1.}}$$

2. The calculation of the variance of the proportions of behavior recorded for each individual in the nine categories during each quarter of the course.

3. The application of the median test to the variances in each quarter to determine whether or not a significant change occurred.

Table 20 gives the variances determined in step two above. The correlated set median test of the variances resulted in a chi-square value of 2.59 for the four quarters. This value is not significant at the 5 per cent level and therefore the hypothesis is not accepted. As the total change was not significant, the changes by quarters are explained by chance variations.

TABLE 20

VARIANCE OF PROPORTIONS OF INTERACTION RECORDED IN THE NONNEGATIVE CATEGORIES OF THE BALES INTERACTION ANALYSIS CHECK LIST FOR EACH INDIVIDUAL DURING THE RESPECTIVE QUARTERS OF THE LEADERSHIP COURSE

Individual	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
103	0.0272	0.0201	0.0221	0.0408
104	.0209	.0302	.0081	.0319
105	.0402	.0137	.0208	.0446
106	.0439	.0194	.0281	.0193
107	.0107	.0418	.0423	.0245
108	.0365	.0164	.0389	.0401
109	.0270	.0282	.0380	.0332
110	.0239	.0314	.0134	.0322
111	.0648	.0277	.0219	.0367
112	.0397	.0406	.0369	.0392
113	.0290	.0553	.0173	.0114
114	.0146	.0224	.0337	.0411
115	.0239	.0239	.0224	.0455
116	.0288	.0317	.0221	.0343
117	Indeterminate (No interaction recorded during first quarter)			
118	.0988	.0988	.0293	.0471
119	.0098	.0233	.0321	.0330
120	.0523	.0320	.0140	.0225
121	Indeterminate (No interaction recorded during first quarter)			
122	.0412	.0679	.0102	.0360
123	.0188	.0193	.0360	.0448
124	.0384	.0239	.0307	.0379
125	Indeterminate (No interaction recorded during first quarter)			
126	.0988	.0293	.0245	.0431
127	.0062	.0186	.0247	.0432
128	.0328	.0466	.0286	.0354
129	Indeterminate (No interaction recorded during first quarter)			
130	.0432	.0988	.0988	.0343
131	.0988	.0494	.0446	.0350
132	.0988	.0375	.0353	.0537
133	.0400	.0251	.0168	.0494
134	.0365	.0304	.0336	.0307
135	Indeterminate (No interaction recorded during first quarter)			
136	.0130	.0269	.0300	.0268
Mean	.0399	.0355	.0295	.0362

Since the variance did not decrease, the variety of nonnegative interaction by the subjects did not increase. It is assumed that a good group member will exhibit a variety of kinds of positive behavior. In this respect, the quality of interaction in the leadership class failed to change. However, the means of the Bales category assignment of the units of nonnegative interaction during the four quarters were 6.396, 6.591, 6.420, and 6.035, respectively. A t of -2.45 between the first quarter mean and the fourth quarter mean indicates, since it lies between the 1 per cent and the 0.1 per cent levels of significance, a significant reduction in these measures. Since the smaller numbered categories on the Bales interaction check list are the supportive and self-directive types of behavior, this change indicates an increase in these kinds of behavior. In this connection, it will also be noted that the decrease in negative interaction (Hypothesis 12) demonstrated a change in the quality of behavior.

Hypothesis Fifteen

In the leadership class composed of school principals the proportion of undesirable behavior per student during the first quarter of the course is negatively correlated with the degree to which reported self-perception of behavior at the beginning of the course is like the ideal group member. The correlation indicated by this hypothesis may be stated as:

$$r(z_{S_1I})(Q_{i_1}) < 0$$

The hypothesis above was tested by correlating¹ the proportions of negative behavior during the first quarter of the course with the g values between the self-report Q-sorts at the beginning of the course and the "Ideal" Q-sort (see Table 21). This correlation was -0.117 which is not significant at the 5 per cent level ($r_{.05} = \pm .34$ for $N = 34$). Hypothesis 15 is therefore not substantiated. From this it is concluded that there was no relationship between the nearness of the self-reports to the "ideal" and the proportion of negative behavior observed for the class members.

Hypothesis Sixteen

In the leadership class composed of school principals, variability of kinds of nonnegative behavior during the first quarter of the course is positively correlated with the degree to which reported self-perception of behavior at the beginning of the course is like the ideal group member. This hypothesis is mathematically stated by the inequality:

$$r(z_{S_1I})(\sigma_{M_1}^2) > 0$$

This hypothesis was tested by correlating the variance of the number of units of nonnegative behavior per category for the individual class members during the first quarter of the course with the g values between the self-report Q-sorts at the beginning of the

¹The relationships between the variables involved in the correlations used in Hypotheses 15-17 showed no indication of curvilinearity on scatter diagrams and so the Pearson product-moment coefficient of correlation was used.

TABLE 21

A COMPARISON OF PROPORTIONS OF NEGATIVE BEHAVIOR IN THE FIRST QUARTER OF THE LEADERSHIP COURSE AND z VALUES BETWEEN A SELF-REPORT Q-SORT AT THE BEGINNING OF THE COURSE AND THE "IDEAL" Q-SORT

Individual	Proportion of Negative Behavior at the Beginning of the Course (Q_{11}).	z Values Between Self-Report at the Beginning of the Course and the "Ideal" Q-Sort (z_{S1I})
103	0.186	0.225
104	.576	.422
105	.302	.578
106	.591	.172
107	.449	.728
108	.167	.470
109	.068	.563
110	.353	.474
111	.292	.347
112	.289	.412
113	.000	.673
114	.293	.782
115	.067	.802
116	.116	.637
117	1.000	.465
118	.818	.528
119	.350	.383
120	.392	.717
121	1.000	.394
122	.023	.511
123	.412	.362
124	.129	.770
125	1.000	.327
126	.933	.470
127	.143	.634
128	.200	.798
129	1.000	.371
130	.500	.200
131	.964	.831
132	.750	.059
133	.174	.387
134	.125	.364
135	1.000	.690
136	.258	.213

$$r_{(Q_{11})(z_{S1I})} = -0.117$$

course and the "Ideal" Q-sort (see Table 22). This correlation was -0.116 . At the indicated degrees of freedom, this coefficient is not significant at the 5 per cent level ($r_{.05} = \pm .37$ where $N = 29$) and so the hypothesis being tested is not accepted. Therefore, it is shown that no significant relationship exists between the variability of nonnegative behavior and the nearness of the self-report to the ideal for the group tested.

Hypothesis Seventeen

In the leadership class composed of school principals, change in proportion of negative behavior is positively correlated with change in the degree to which reported self-perception is like the ideal group member. This hypothesis may be stated by the following inequality of the correlation of two differences and zero:

$$r(Q_{i_1} - Q_{i_4})(Z_{S_4I} - Z_{S_1I}) > 0$$

The hypothesis was tested by correlating the differences indicated above, i.e. the proportion of negative behavior during the first quarter of the course minus the proportion in the fourth quarter and the g between the self Q-sort at the beginning of the course and the Ideal Q-sort minus the g between the self Q-sort at the end of the course and the Ideal Q-sort (see Table 23). The coefficient of correlation for these variables was 0.144 . This is not significant at the 5 per cent level ($r_{.05} = .37$ where $N = 29$) so the hypothesis being tested is not substantiated. It is thus indicated that no significant relationship existed between the changes in quality of interaction

TABLE 22

A COMPARISON OF VARIABILITY OF THE TYPES OF NONNEGATIVE BEHAVIOR BY THE LEADERSHIP CLASS MEMBERS IN THE FIRST QUARTER OF THE LEADERSHIP COURSE AND z VALUES BETWEEN A SELF-REPORT Q-SORT AT THE BEGINNING OF THE COURSE AND THE "IDEAL" Q-SORT

Individual	Variance of Proportions of Behavior in Nonnegative Categories During the First Quarter of the Course	z Values Between Self-Report Q-Sort at the Beginning of the Course and the "Ideal" Q-Sort
103	0.027	0.225
104	.021	.422
105	.040	.578
106	.044	.172
107	.011	.728
108	.037	.470
109	.027	.563
110	.024	.474
111	.065	.347
112	.040	.412
113	.029	.673
114	.015	.782
115	.024	.802
116	.029	.637
117	Indeterminate	--
118		.465
119		.528
120		.383
121	Indeterminate	--
122		.717
123		.394
124		.511
125		.362
126	Indeterminate	--
127		.770
128		.327
129		.470
130		.634
131		.798
132	Indeterminate	--
133		.371
134		.200
135		.831
136		.059
137		.387
138		.040
139	Indeterminate	--
140		.364
141		.690
142		.213

TABLE 23

A COMPARISON OF CHANGES IN THE DEGREE TO WHICH REPORTED SELF-PERCEPTION
IS LIKE AN IDEAL AND CHANGES IN THE PROPORTION OF NEGATIVE BEHAVIOR
DURING THE LEADERSHIP COURSE

Individual	$\Sigma s_{11}I - \Sigma s_{12}I$	$Q_{11} - Q_{12}$
103	-0.374	0.081
104	.301	.194
105	-.011	.240
106	.254	.326
107	-.266	.214
108	.095	.145
109	-.246	-.061
110	.129	.098
111	-.150	.169
112	-.015	-.111
113	-.070	-.060
114	-.192	.060
115	-.112	-.338
116	-.154	.016
117	-.216	1.000
118	.183	.639
119	.153	.209
120	-.174	-.051
121	.069	.885
122	.107	-.164
123	.030	.369
124	-.088	.088
125	.201	.875
126	.008	.788
127	.107	-.052
128	-.875	.137
129	.036	.905
130	-.051	.227
131	-.081	.688
132	.103	.666
133	-.263	-.159
134	.011	.042
135	-.303	.667
136	.339	-.014

$$r(\Sigma s_{11}I - \Sigma s_{12}I)(Q_{11} - Q_{12}) = 0.114$$

as measured by the proportion of negative behavior and any changes in quality of reported self-perception.

Summary

The analysis of the observational data revealed a number of changes in the behavior of the principals in the class sessions. These changes were:

1. The total volume of interaction per subject per unit time increased during the time spent in the course. The change from the first quarter to the second quarter was not significant but the increases between the second and third, and the third and fourth quarters were significant.

2. The amount of participation per member became more uniform among the members of the class during the course. More people participated and fewer monopolized the group discussions. This change was most significant between the second and third, and the third and fourth quarters of the course.

3. The quality of the interaction changed through a decrease in negative behavior. Although there was an over-all decrease in negative behavior, an increase occurred during the second quarter. There was also a shift during the course of the mean nonnegative Bales category assignment toward the supportive and self-directive types of behavior.

4. The self-direction and independence of the group as indicated by the targets of interaction (the person or thing to which a unit of interaction was directed) increased during the course.

A joint examination of the observational and Q-sort data failed to demonstrate any of the relationships tested. This might have been predicted from the lack of change in the Q-sort data during the course. Those items tested were:

1. The relationship between (A) nearness of a self-report to the ideal and (B) the proportion of negative behavior observed.
2. The relationship between (A) nearness of a self-report to the ideal and (B) the variability of kinds of nonnegative behavior observed.
3. The relationship between (A) any change in nearness of a self-report to the ideal and (B) any change in proportion of negative behavior observed.

From this, it appears likely that there was no correlation between the subjects' report of their behavior on the Q-sort and their behavior as observed by the investigators.

Bibliography

1. Bales, Robert F. Interaction Process Analysis, A Method for the Study of Small Groups. Cambridge: Addison-Wesley Press, Inc. 1951.
2. McNemar, Quinn. Psychological Statistics. New York: John Wiley and Sons, 1955.
3. Peters, Charles C. and VanVoorhis, Walter R. Statistical Procedures and Their Mathematical Bases. New York: McGraw-Hill Book Company, 1940.
4. Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, 1956.
5. Walker, Helen M. and Lev, Joseph. Statistical Inference. Henry Holt and Company, 1953.
6. Wert, James E., Neidt, Charles O., and Ahmann, J. Stanley. Statistical Methods in Educational and Psychological Research. New York: Appleton-Century-Crofts, Inc., 1954.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study is a part of a comprehensive study made under the auspices of the Kellogg Leadership Project at the University of Florida. The purpose of the entire project was to investigate the results of the University's Educational Leadership course upon a group of school principals in a given county school system. It was anticipated that this study would need to extend over a period of several years and include such factors as the principal himself, the school and its teachers and pupils, and the community and its parents.

The study presented here is an investigation of certain aspects of the perception and behavior of the principals during the period of time they were enrolled in the course. Emphasis is placed upon answering the following questions:

1. Will a change occur in the principals' reported perception of themselves and/or others in a group situation as measured by a Q-sort during the course?
2. Will their behavior in the class as recorded on the Bales Interaction Process Analysis check list change during the course?

The leadership course was conducted in Tampa, Florida, under the auspices of the Florida General Extension Division. Thirty-four principals of the Hillsborough County school system participated.

Data for the study were gathered from these subjects by (A) the administering of a Q-sort before and after the course and (B) the observation of a sample of the class sessions and the recording of interaction through a system developed by Robert F. Bales.

Each subject completed a Q-sort twice at the beginning of the course and twice at the end of the course. One sort was the person's reported perception of his behavior in a discussion-type group and the other sort was his reported perception of the behavior of another specified person of the group. A test of the reliability of the Q-sort used indicated an index of reliability of .77 for the population studied. The interaction in the class was recorded according to the person interacting, the type of interaction, and the target of each unit of interaction. The index of reliability between two independent observers was .98 for category assignment and approximately 1.00 for identification of the person interacting.

Seventeen specific hypotheses were tested concerning (A) reported perception before and after the class, (B) changes in behavior in the class situation, and (C) relationships between the perceptual and behavioral data. A variety of statistical procedures, both parametric or nonparametric according to the situation, were used in testing the hypotheses.

Conclusions

1. The principals enrolled in the leadership course reported their perception of their behavior differently from each other.

Specifically, the class members saw themselves as not characterized by one emotional modality but different individuals saw themselves as characteristically behaving according to the different modes of dependence, counter-dependence, pairing, counter-pairing, fight, and flight. This kind of result would normally be expected in any diversified group of people. There was, however, no indication during the course of any change in the way the group members reported their perceptions of themselves or of others (Hypotheses 2-9).

2. The behavior of the members of the leadership class underwent changes during the period of time they were enrolled in the course. The total volume of interaction by the class members progressively increased during the course, indicating an increasing involvement of the principals in the group activities. This increase was most significant after the second and third quarters of the course. The amount of participation in class activities became more uniform among the members during the course, that is, fewer individuals monopolized the class discussions and fewer people sat without overt participation. Again, this change was most significant between the second and third, and the third and fourth quarters of the course. The quality of interaction, as indicated by a declining proportion of negative behavior, improved during the course. An exception to this trend occurred during the second quarter when the proportion of negative behavior increased slightly (not significantly). However, the quality of interaction did not change as measured by the variety of types of nonnegative interaction, although the nine

categories of nonnegative behavior had a shift in mean toward the supportive and self-directive types of behavior (see Appendix A for these types). The group's self-directiveness and independence of direction by the instructors, as indicated by the people to whom the subjects spoke, progressively increased during the course.

3. There was no relationship between the reported perception of the class members and their behavior in the class or between reported changes in perception and changes in behavior in the class. This might have been expected from the lack of change in reported perception indicated above.

The entire second phase of the Kellogg project can be summarized by a series of "If, then" propositions which might be outlined in the following manner:

If a number of school administrators are enrolled in a student-centered leadership class, they will experience certain changes in their perceptions of themselves, their peers, and their job.

If these changes in perception occur, their behavior in class will change.

If a change occurs in the behavior of the principals in class, this change will be reflected in their behavior as principals.

If the principals change their on-the-job patterns of behavior, this change will cause a change in the attitudes of the teachers, pupils, and parents toward the principal and the school.

This theory was conceived as a stairway arrangement in which each step depended upon the preceding one. The present study dealt with phases of the first two steps as outlined above. It will be noted from the findings that the predicted changes in perception did not occur but that behavioral changes did take place. For this study, the change in behavior is of the greatest consequence since it is a crucial step in the theory behind the leadership class. The lack of change in reported perception may be ascribed to various causes. Among these are:

1. There was no change in perception.
2. There was a change in perception but this change had not reached a level of awareness such that it could or would be reported.
3. There was a change in perception of such a nature that it could not be indicated by the instrument used.

If one accepts the first possibility as the reason for the lack of change in reported perception, he suggests that perceptual change is not a requisite for behavioral change. This reasoning would be perfectly acceptable to some schools of psychology but not to the perceptual school. The second possibility would probably be acceptable to both perceptual psychologists and to the more behavioristic psychological schools although it might be suggested by the latter that if such perception existed upon so tenuous a plane that it is unnecessary to hypothesize its existence. The third item poses the possibility that the sensitivity of the Q-sort instrument used might not be great enough to identify certain kinds of changes.

Psychologists agree that the ascertaining of perception is difficult. Insofar as this study is concerned, it was found that the direct observation or measurement of behavior was a more fruitful way of determining change in behavior than the more indirect procedure of attempting to determine perception. It should, however, be noted that the primary purpose of the instructors was that of bringing about behavioral changes rather than effecting either perceptual changes or personality changes.

Although the procedures of the class were similar, the content or subject matter was quite different from that frequently used in group therapy or in training programs such as those described by Thelen (3). The group herein studied dealt largely with the leadership problems faced by the members in their roles as school principals whereas other groups have used personal introspection and analysis of their processes as a group for content.

The changes in behavior observed in this study generally substantiate the predictions made by Gordon and reported in Carl Rogers' Client Centered Therapy (2, p. 378) concerning behavioral changes in person-centered groups. Homan's (1) theories concerning activity, interaction, and sentiment may well be used as an explanation of the changes observed in the behavior of the group of principals: that activity, interaction, and sentiment naturally followed each other in the group operation and that each influenced the others. During this process, norms were established by the aggregate of people and so a "group" came into existence. The mutual influence between the processes of (a) the behavior of the

members establishing and changing the group norms and (b) the norms influencing the behavior of the members, ultimately could result in the type of changes observed in the group.

Recommendations for Further Research

1. Further study should be made of perceptual change resulting from student-centered teaching techniques. Such research should include:

- A. The development and/or improvement of instruments for measuring or indicating perceptual change which are highly discriminating and can be administered with an economy of time and effort.
- B. Further study of the relationship between perceptual change and behavioral change which might occur in nondirective situations.
- C. The investigation of the relative value of a leadership training program for beginning administrators as compared to one for established administrators.

2. The optimum length of a leadership program should be determined. The present study indicates that the length of the course herein investigated is minimal but these results should be substantiated.

3. Long-time results of the leadership course upon the school and community should be compared with the immediate effects indicated here. The results of this study should not be considered as conclusive nor as a complete evaluation of the leadership training program. The

combination of the results of this study and the results of studies of changes in the schools and communities concerned should yield a much broader base for such an evaluation. From this evaluation, the successful and the unsuccessful procedures should be determined and the training program for school administrators continually improved through the use of these and other criteria.

Bibliography

1. Homans, George C. The Human Group. New York: Harcourt, Brace, and Company, 1950.
2. Rogers, Carl R. Client-Centered Therapy, Its Current Practices, Implications, and Theory. Boston: Houghton Mifflin Company, 1951.
3. Thelen, Herbert A. Dynamics of Groups at Work. Chicago: The University of Chicago Press, 1954.

APPENDIX A

Directions for Making the Q-Sort

Please sort the attached statements according to the way they describe your feelings, attitudes or behavior in this group.

Sort the items into eleven categories placing the prescribed number of cards into each category.

	Most Characteristic					Least Characteristic					
Categories:	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
No. of cards	1	2	4	7	10	12	10	7	4	2	1

Place the single trait which you feel is most characteristic of yourself in Category I. The trait least characteristic should be placed in Category XI. Category II will then include the two next most characteristic descriptions, and so on. Category VI will contain the twelve items which you feel are neutral or irrelevant.

After the cards have been sorted and the appropriate number of items placed in each category, please check again to see that the number of items in each category is correct. Then ask the test administrator to pick up your cards for recording.

When the sorted cards describing yourself have been picked up, you will be given another set to sort in the same manner (see instructions above) according to the way you think the statements describe the feelings, attitudes, or behavior of another prescribed person of the group. You may be asked to repeat this for a number of individuals.

If you have any questions, ask the person administering the test.

Item Population of Q-Sort¹Dependency (D)

Inclined to follow the suggestions of the leader.
 Liked to appear in a good light in relation to group leaders.
 Inclined to go along with the dominant mood of the group.
 Comfortable when the leaders were active and directive.
 Preferred to proceed along established lines.
 Annoyed when the actions of the leader were not what he expected.
 Expected the leaders to take major responsibility for planning group activities.
 Inclined to follow the suggestions of another group member.
 Tended to defend the leaders when they were attacked by others.
 Inclined to direct his comments to the leader rather than to group members.

Counter-Dependency (CD)

Tended to suggest alternative action to that proposed by the leader.
 Wanted to assume active leadership himself.
 Enjoyed counterposing himself to the leaders.
 Tended to look to other members to back up his position.
 Tended to maintain himself in a focal position during discussions.
 Inclined to assume a directive role in the group.
 Tried to lead others against the leader.
 Felt competitive toward individuals who attempted to dominate the group.
 Concerned with maintaining a high status in the group.
 Tended to express negative feelings about the leader.

Pairing (P)

Liked to keep group discussion on a personal level.
 Attached to one or two particular members.
 Enjoyed personal interchanges with one or two particular members.
 Wanted to know some of the other members of the group intimately.
 Felt that social relationships were maintained on too formal a level.
 Wanted to be a member of a clique.
 Inclined to bring intimate material to the group.
 Inclined to extend group friendships outside the group.
 Would have preferred a smaller, more intimate group.
 Liked to make side comments to one other member.

¹Herbert A. Thelen, Methods for Studying Work and Emotionality in Group Operation. Chicago: Human Dynamics Laboratory, University of Chicago, 1954, pp. 200-201.

Counter-Pairing (CP)

- Disinclined to form special friendships.
- Detached in manner.
- Disinclined to make personal comments about other members.
- Preferred discussing issues in intellectual rather than personal terms.
- Oriented toward the group as a whole rather than toward particular members.
- Embarrassed when other members made personal comments about him.
- Unresponsive to gestures of friendship.
- Resistive against breaking up into smaller sub-groups.
- Felt that social relationships were too intimate.
- Tended to discourage personal discussion between two other group members.

Fight (F)

- Critical of other members.
- Ready to take sides in an argument.
- Tended to sidetrack the group from its goal.
- Impulsive in expressing negative feelings.
- Prolonged or intensified arguments.
- Subtle in attacking others.
- Tended to express annoyance toward other members of the group.
- Tended to become sarcastic when annoyed.
- Tended to start arguments.
- Eager to respond to attack by counterattack.

Flight (FL)

- Uncomfortable when negative feelings were expressed in the group.
- Reluctant to come to meetings.
- Inclined to make light of ill feeling expressed.
- Preferred to remain neutral when several members of the group were arguing.
- When attacked felt uncomfortable and remained silent.
- Inclined to mediate arguments.
- Uneasy during group disharmony.
- Tried to avoid being drawn into an argument.
- Tried not to show his true feelings.
- Didn't like to express negative or critical opinions.

_____ 1.	Q-Sort Recording Sheet	36. _____
_____ 2.		37. _____
_____ 3.	Group _____	38. _____
_____ 4.	Date _____	39. _____
_____ 5.	Name _____	40. _____
_____ 6.		41. _____
_____ 7.		42. _____
_____ 8.		43. _____
_____ 9.	26. _____	44. _____
_____ 10.	27. _____	45. _____
_____ 11.	28. _____	46. _____
_____ 12.	29. _____	47. _____
_____ 13.	30. _____	48. _____
_____ 14.	31. _____	49. _____
_____ 15.	32. _____	50. _____
_____ 16.	33. _____	51. _____
_____ 17.	34. _____	52. _____
_____ 18.	35. _____	53. _____
_____ 19.		54. _____
_____ 20.		55. _____
_____ 21.		56. _____
_____ 22.		57. _____
_____ 23.		58. _____
_____ 24.		59. _____
_____ 25.		60. _____

THE SYSTEM OF CATEGORIES USED IN OBSERVATION: THE BALES CHECK LIST

- I Shows solidarity, raises other's status, gives help, reward
- II Shows tension release, jokes, laughs, shows satisfaction
- III Agrees, shows passive acceptance, understands, concurs, complies
- IV Gives suggestions, direction, implying autonomy for others
- V Gives opinion, evaluation, analysis, expresses feeling, wish
- VI Gives orientation, information, repeats, clarifies, confirms
- VII Asks for orientation, information, repetition, confirmation
- VIII Asks for opinion, evaluation, analysis, expression of feeling
- IX Asks for suggestion, direction, possible ways of action
- X Disagrees, shows passive rejection, formality, withholds help
- XI Shows tension, asks for help, withdraws out of field
- XII Shows antagonism, deflates other's status, defends or asserts self

APPENDIX B

TABLE 24

THE CONFIGURATION OF Q-SORTS DONE BY THE LEADERSHIP CLASS MEMBERS
ABOUT THEMSELVES AT THE BEGINNING OF THE COURSE

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
103	43	12,28	13,27, 52,59	3, 9, 19,21, 22,23, 54	1,11,14, 25,29,36, 37,39,48, 57	5, 6, 7, 15,16,38, 42,47,51, 53,55,56	8,10,18, 24,30,31, 41,45,49, 58	2, 4, 26,32, 35,44, 50	17,20, 34,60	33,40	46
104	57	20,35	3,20, 27,44	13,15, 21,22, 50,51, 54	7, 9,14, 16,19,25, 37,39,45, 49	1, 2, 4, 6,31,33, 40,42,52, 53,58,60	10,24,26, 34,38,43, 46,48,55, 59	12,17, 18,23, 30,32, 36	5,11, 41,47	29,56	8
105	16	49,53	13,15, 19,54	7,22, 32,44, 45,58, 59	3, 9,20, 21,24,27, 28,43,51, 57	1, 2,11, 12,18,26, 34,38,39, 46,48,52	6,17,25, 30,36,37, 40,41,55, 60	4,10, 23,31, 33,35, 42	8,14, 29,56	5,47	50
106	36	12,57	21,22, 28,48	3, 9, 23,30, 39,54, 59	16,20,27, 32,35,43, 44,50,51, 53	1, 7,13, 14,15,17, 19,24,25, 38,45,55,	2,18,26, 33,34,37, 46,49,52, 58	6,10, 11,29, 31,41, 47	4, 5, 8,42	40,60	56
107	57	28,49	16,32, 38,43	15,20, 21,22, 44,51, 53	2, 4, 9, 11,14,19, 34,36,45, 48	6, 7,12, 24,25,27, 30,47,54, 55,56,58	1, 3,18, 35,37,39, 41,42,46, 50	10,17, 23,26, 31,52, 59	8,13, 29,33	5,60	40

TABLE 21--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
108	27	21, 37	51, 54, 57, 58	9, 19, 22, 25, 39, 44, 49	3, 4, 10, 11, 15, 16, 20, 28, 32, 40	2, 7, 18, 23, 24, 29, 30, 36, 46, 52, 53, 59	1, 12, 13, 33, 42, 43, 45, 50, 55, 56	14, 26, 31, 38, 41, 48, 60	5, 6, 8, 34	17, 35	47
109	32	14, 28	15, 25, 43, 50	6, 22, 36, 38, 49, 55, 59	2, 3, 23, 27, 33, 34, 39, 51, 57, 58	1, 4, 11, 13, 21, 24, 40, 41, 45, 48, 52, 54	7, 9, 12, 16, 19, 26, 30, 35, 44, 53	5, 17, 18, 20, 46, 56, 60	29, 31, 42, 47	8, 37	10
110	57	22, 27	6, 9, 13, 36	15, 20, 28, 30, 32, 43, 51	1, 3, 4, 7, 16, 38, 44, 53, 54, 59	2, 8, 11, 14, 25, 26, 29, 39, 45, 52, 55, 56	17, 18, 19, 21, 24, 34, 46, 48, 49, 58	10, 23, 33, 37, 40, 41, 42	5, 12, 31, 60	47, 50	35
111	57	11, 22	14, 28, 32, 52	7, 13, 15, 21, 45, 48, 51	3, 4, 9, 12, 20, 30, 31, 35, 39, 53	1, 16, 24, 25, 27, 36, 43, 44, 49, 54, 55, 59	5, 19, 26, 33, 37, 40, 41, 46, 47, 50	2, 6, 18, 29, 34, 42, 58	10, 17, 23, 38	8, 56	60
112	27	48, 51	3, 9, 13, 57	2, 12, 22, 25, 28, 33, 58	16, 20, 21, 38, 41, 43, 44, 47, 54, 59	6, 10, 14, 15, 18, 19, 39, 42, 45, 49, 52, 55	1, 4, 5, 23, 26, 30, 34, 50, 56, 60	11, 24, 32, 36, 37, 46, 53	7, 8, 17, 35	29, 40	31

TABLE 21--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
113	36	19,28	12,22, 44,48	13,14, 15,20, 25,32, 43	3, 6, 9, 16,21,24, 27,30,51, 53	4,10,11, 26,31,33, 45,46,49, 52,54,55	7,17,34, 38,39,41, 50,57,58, 59	1, 2, 5, 8, 47,56, 60	18,23, 29,37	35,42	40
114	22	16,32	28,34, 53,57	2, 3, 10,13, 15,51, 58	4, 9,20, 21,26,39, 44,45,50, 52	6, 7,11, 14,18,19, 24,25,27, 49,54,59	12,17,23, 30,33,36, 38,43,46, 48	29,31, 37,40, 41,47, 55	5,35, 56,60	1,42	8
115	28	22,57	16,21, 39,53	3, 4, 12,15, 37,43, 44	9,20,25, 27,30,32, 35,49,50, 58	1, 6, 7, 17,19,31, 33,36,40, 51,54,55	2,13,14, 18,24,26, 40,45,48, 59	8,10, 29,34, 38,41, 52	5,11, 23,60	47,56	42
116	51	22,32	28,36, 50,57	7, 9, 12,19, 21,34, 43	3,11,16, 25,27,30, 38,45,49, 50	4, 6,13, 14,20,24, 29,39,40, 53,54,56	2,17,33, 35,37,41, 44,48,52, 55	10,15, 18,26, 31,59, 60	1, 5, 23,47	8,42	40
117	28	16,36	26,30, 39,54	3, 4, 15,32, 46,57, 58	7,10,20, 21,22,24, 38,44,49, 52	8, 9,18, 25,34,35, 37,40,42, 53,55,56	2,11,13, 23,27,31, 41,47,48, 50	5, 6, 12,19, 29,43, 59	1,17, 33,45	14,51	60

TABLE 21--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
118	28	21,54	14,20, 22,53	7,13, 27,38, 39,49, 50	2, 3,19, 26,32,34, 43,44,45, 51	1, 6, 9, 16,24,35, 48,52,55, 56,57,58 60	4, 8,12, 23,25,36, 40,41,47, 60	10,11, 15,18, 29,33, 59	17,30, 37,46	5,31	42
119	13	15,52	19,21, 44,57	16,20, 25,39, 49,51, 53	6,10,22, 28,30,32, 36,43,50, 58	5, 7, 8, 14,23,26, 27,34,35, 37,38,59	1, 4,17, 18,31,41, 45,47,48, 55	2, 3, 9,12, 24,33, 54	11,29, 42,60	46,56	40
120	22	15,28	3,20, 32,53	7,14, 16,30, 34,36, 39	9,10,13, 21,27,44, 46,48,50, 52	2, 4, 6, 8,12,19, 26,40,43, 49,51,58 57	5,11,18, 25,35,38, 45,54,55, 57	1,17, 24,31, 33,37, 41	29,47, 56,59	23,60	42
121	57	1,27	20,21, 46,49	7,13, 19,39, 43,48, 58	9,14,15, 25,28,41, 44,45,50, 51	3, 4,10, 16,24,30, 31,32,33, 37,53,54 55	2, 6,12, 18,23,26, 34,36,38, 55	5,11, 22,40, 52,59, 60	17,29, 35,42	47,56	8
122	57	21,22	3,32, 38,54	2,14, 16,20, 28,48, 51	4, 7,15, 27,34,39, 41,45,49, 50	6,10,11, 13,19,24, 25,26,31, 40,43,53 59	1,12,18, 23,30,35, 36,44,52, 59	15,17, 33,37, 46,55, 60	5, 8, 29,58	47,56	42

TABLE 24--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
123	34	38,44	30,47, 48,51	2,11, 24,27, 28,43, 52	9,18,21, 26,32,35, 49,50,51, 59	4,16,19, 20,22,23, 25,39,41, 46,53,58	3, 5,10, 13,15,33, 36,37,55, 57	6, 7, 8,14, 29,40, 45	1,12, 31,60	17,42	56
124	32	3,22	9,16, 28,57	13,15, 19,20, 39,44, 51	12,21,24, 25,27,34, 36,43,54, 58	2, 4, 7, 14,26,38, 45,48,49, 50,52,55	1,10,11, 18,23,33, 37,46,53, 59	5, 6, 17,30, 31,42, 60	29,35, 41,56	8,47	40
125	22	20,33	21,35, 43,46	3, 7, 10,38, 45,53, 54	9,12,13, 19,25,36, 39,51,58, 60	1, 2, 6, 8,15,27, 28,32,37, 41,49,52	4,11,14, 16,18,24, 34,47,55, 57	5,17, 23,26, 31,40, 44	42,48, 56,59	29,30	50
126	59	12,38	2, 3, 50,51	4,15, 16,24, 30,32, 53	19,22,27, 36,37,39, 47,49,57, 58	9,11,14, 21,25,28, 33,34,35, 41,43,46	1, 6,13, 20,23,44, 45,48,54, 55	5, 8, 10,17, 18,26, 31	7,40 52,60	29,56	42
127	57	44,51	15,20, 32,58	3, 4, 21,22, 28,49, 53	2, 9,13, 16,19,26, 27,34, 36, 45	1, 7,12, 25,37,46, 48,50,52, 54,55,59	6,14,18, 24,38,39, 41,43,47, 56	11,17, 23,30, 35,40, 60	8,10, 29,31	5,33	42

TABLE 21.—Continued

Individuals	Items in the Respective File Numbers										
	1	2	3	4	5	6	7	8	9	10	11
128	9	39,49	6,32, 30,51	16,21, 22,24, 28,33, 58	8,10,12, 15,19,20, 43,44,50, 57	2,11,13, 25,27,34, 36,48,52, 53,55,59	1, 5, 18, 26,30,31, 35,42,45, 54	3, 7, 14,23, 29,40, 47	4,37, 46,60	41,56	17
129	36	22,33	3,35, 49,51	9,10, 12,15, 32,48, 59	2, 5, 6, 11,14,28, 43,44,46, 50	7,13,21, 24,26,27, 34,38,45, 52,54,60	4, 16, 30, 37,39,42, 53,55,57, 58	8,19, 20,23, 31,40, 41	1,17, 25,47	18,29	56
130	28	6,13	8,16, 45,52	1,15, 24,29, 39,57, 59	2, 9, 10, 21,27,32, 35,36,43, 48	5,11,12, 14,18,26, 31,33,34, 37,38,50	4, 7, 19, 20,25,30, 51,53,55, 60	3,17, 22,23, 46,49, 58	40,42, 54,56	41,44	47
131	43	22,28	9,16, 51,53	3,13, 19,44, 49,57, 58	4, 7, 11, 20,24,27, 32,37,48, 52	1, 2, 8, 15,21,25, 33,36,38, 50,54,55	5, 6, 11, 12,34,39, 41,45,46, 60	10,17, 23,30, 31,40, 59	18,26, 29,42	35,47	56
132	1	9,39	22,24, 43,57	13,18, 19,21, 30,34, 49	4, 5, 6, 8,15,20, 27,28,36, 52	10,23,29, 31,33,40, 42,45,47, 55,59,60	7, 16, 25, 26,37,38, 44,46,53, 58	11,12, 14,17, 32,35, 50	3,41, 48,54	2,51	56

TABLE 24--Continued

Individuals	Items in the Respective File Numbers										
	1	2	3	4	5	6	7	8	9	10	11
133	22	28,36	14,32, 50,58	6,12, 19,43, 51,54, 59	5,15,20, 27,30,35, 38,44,48, 52	2,4,7, 11,13,16, 23,29,45, 46,49,60	8,17,18, 24,33,39, 41,42,53, 57	1,3, 9,10, 34,47, 56	25,26, 31,37	21,55	40
134	57	12,34	1,3, 15,19	9,16, 21,26, 36,39, 51	13,20,28, 30,32,49, 50,53,54, 56	2,6,7, 10,17,23, 24,27,43, 45,55,58	11,14,18, 22,35,37, 38,44,46, 52	4,8, 25,31, 33,48, 59	5,40, 42,47	29,60	41
135	46	43,58	13,22, 28,40	3,6, 27,32, 39,49, 53	7,14,15, 16,21,24, 25,36,45, 51	2,9,10, 17,20,23, 26,37,41, 50,52,55	4,12,19, 33,34,44, 48,54,59, 60	1,5, 11,29, 30,31, 38	18,35, 42,47	56,57	8
136	22	28,36	24,30, 38,39	8,15, 21,48, 53,54, 57	1,18,19, 20,25,29, 31,32,47, 56	7,13,16, 23,27,34, 37,41,42, 55,58,60	6,11,12, 14,43,44, 45,46,50 52	3,9, 10,35, 49,51, 59	4,5, 26,33	2,17	40
137	22	19,43	1,4, 15,21	3,13, 16,26, 28,39, 52	7,20,27, 34,35,48, 50,51,54, 57	2,6,9, 11,33,37, 44,46,49, 53,58,59	5,8,17, 24,25,31, 32,38,55, 60	10,12, 23,29, 30,36, 45	14,41, 42,47	18,56	40
138	Discontinued the course before completing the Sort										

TABLE 25

THE CONFIGURATION OF Q-SORTS DONE BY THE LEADERSHIP CLASS MEMBERS
ABOUT OTHER SPECIFIED MEMBERS AT THE BEGINNING OF THE COURSE

Individuals Doing the Sort		Items in the Respective File Numbers										
Sort is Done		1	2	3	4	5	6	7	8	9	10	11
103	135	7	10, 21	15, 39, 54, 57	3,13, 20,22, 27,31, 40	9,11,12, 14,25,32, 44,45,49, 52	5,18,29, 30,34,35, 42,43,50, 51,55,60	2, 6,17, 24,33,38, 46,47,58, 59	1,19, 26,28, 37,41, 53	16, 23, 36, 48	8, 56	4
104	134	57	22, 27	13, 35, 39, 51	15,21, 28,33, 34,43, 54	2, 3, 7, 9,10,14, 16,38,50, 59	1,11,19, 20,25,26, 32,37,40, 45,49,58	4, 6,17, 24,30,31, 36,46,53, 55	12,18, 23,47, 48,52, 60	8, 11, 42, 44	29, 56	5
105	128	39	20, 44	3, 16, 27, 45	15,21, 22,24, 28,49, 53	1, 9,10, 13,32,34, 38,43,51, 54	2, 4, 7, 8,18,19, 26,31,52, 55,57,58	12,25,30, 33,35,36, 37,40,46, 50	6,11, 11,23, 42,59, 60	17, 41, 48, 56	5, 29	47
106	133	12	30, 57	9, 22, 36, 59	10,11, 16,18, 23,35, 54	1,13,21, 28,33,37, 39,46,48, 55	2, 4, 6, 17,20,24, 27,32,34, 41,50,51	3,14,19, 25,38,43, 45,49,53, 58	7, 8, 26,29, 42,44, 52	15, 31, 56, 60	5, 40	47
107	118	15	28, 57	22, 38, 43, 51	3,16, 23,32, 34,45, 58	1,12,14, 19,21,25, 27,52,53, 55	2, 4, 6, 9,17,18, 24,30,44, 48,54,59	7,10,11, 13,29,35, 36,39,49, 50	20,26, 33,37, 40,47, 56	5, 8, 31, 46	41, 60	42

TABLE 25--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
108	111	22	16, 58	4, 27, 28, 57	3, 9, 20, 21, 49, 53, 54	13, 15, 19, 24, 25, 30, 39, 44, 45, 50	1, 11, 18, 23, 26, 33, 37, 40, 43, 48, 51, 56	5, 6, 12, 31, 32, 36, 46, 52, 55, 59	2, 7, 17, 29, 42, 47, 60	10, 14, 34, 41	8, 38	35
109	103	10	11, 13	31, 32, 35, 49	6, 21, 23, 25, 28, 30, 51	3, 9, 12, 14, 15, 16, 24, 41, 44, 54	18, 22, 29, 34, 36, 38, 39, 46, 48, 50, 57, 59	4, 5, 7, 20, 27, 33, 43, 45, 55, 58	1, 2, 17, 37, 52, 53, 60	8, 19, 26, 40	42, 56	47
110	125	57	9, 28	20, 22, 27, 32	4, 13, 15, 16, 23, 38, 44	6, 24, 25, 26, 30, 45, 46, 54, 58, 60	2, 3, 11, 12, 19, 36, 37, 39, 42, 51, 53, 59	1, 7, 17, 21, 34, 43, 49, 50, 52, 55	5, 8, 10, 33, 40, 41, 48	14, 29, 31, 56	18, 47	35
111	121	39	7, 24	13, 15, 20, 57	3, 4, 27, 44, 49, 52, 53	2, 6, 21, 37, 45, 48, 50, 51, 54, 55	5, 8, 9, 14, 25, 26, 31, 34, 35, 40, 43, 56	16, 22, 23, 28, 36, 38, 41, 46, 58, 59	10, 11, 12, 18, 19, 32, 60	1, 17, 33, 47	29, 30	42
112	132	53	15, 27	7, 9, 20, 22	12, 13, 14, 25, 40, 43, 50	3, 16, 18, 28, 34, 39, 45, 48, 49, 57	1, 2, 10, 11, 21, 24, 38, 46, 51, 54, 55, 58	4, 8, 19, 26, 29, 33, 41, 42, 52, 56	5, 17, 32, 35, 37, 47, 60	6, 30, 36, 44	31, 59	23

TABLE 25--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective Pile Numbers										
		1	2	3	4	5	6	7	8	9	10	11
113	109	12	14, 16	13, 22, 36, 44	10,15, 19,20, 28,32, 50	3,11,21, 27,43,48, 49,51,52, 59	4, 6, 7, 9,24,25, 30,39,45, 54,55,57	8,18,26, 33,34,35, 42,46,56, 60	2, 5, 31,38, 47,53, 58	17, 23, 37, 41	1, 40	29
114	117	16	15, 58	22, 26, 50, 57	3,20, 21,32, 34,44, 51	10,13,19, 27,28,38, 43,45,52, 54	2, 6, 9, 14,18,24, 25,33,48, 49,55,59	4, 7,11, 12,23,30, 36,39,40, 41	1,31, 37,46, 47,53, 60	5, 17, 35, 56	29, 42	8
115	110	28	22, 57	16, 39, 53, 58	2,12, 21,27, 30,44, 50	3, 4,14, 20,25,36, 43,46,49, 51	8, 9,18, 19,24,26, 34,35,37, 45,54,55	1,10,13, 15,32,33, 38,40,48, 59	6, 7, 17,29, 31,41, 52	5, 11, 23, 56	47, 60	42
116	124	9	51, 57	27, 34, 39, 53	13,15, 21,24, 38,45, 50	2, 3,22, 25,26,32, 49,54,55, 58	4, 5, 6, 16,20,23, 28,33,40, 46,52,60	1, 7,12, 14,18,19, 29,37,43, 48	10,17, 31,41, 44,47, 56	8, 11, 30, 59	35, 42	36
117	122	54	3, 57	15, 21, 22, 44	12,19, 20,24, 27,43, 51	2, 4,16, 26,28,36, 38,39,49, 58	8, 9,18, 25,34,35, 37,40,42, 53,55,56	6,10,11, 13,23,29, 30,48,50, 52	1, 7, 31,36, 45,46, 47	14, 41, 59, 60	5, 33	17

TABLE 25--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
118	126	22	6, 54	21, 32, 34, 35	2,20, 36,38, 50,53, 58	3,4,5, 16,24,26, 27,44,45, 49	9,10,12, 13,14,15, 19,25,39, 48,51,52	7,23,28, 40,41,43, 47,55,57, 59	11,17, 18,29, 30,37, 46	1, 8, 31, 56	33, 60	42
119	116	13	22, 36	9, 24, 27, 57	21,30, 32,34, 39,51, 53	2,3,12, 16,18,28, 33,37,50, 54	6,10,15, 19,25,43, 44,48,49, 52,56,59	1,11,14, 17,20,31, 35,38,55, 60	4,7, 23,29, 42,46, 47	8, 11, 15, 58	5, 26	40
120	104	57	8, 12	9, 24, 31, 54	3,17, 18,30, 39,45, 48	6,7,13, 19,21,27, 43,44,51, 53	1,2,10, 15,20,25, 26,32,37, 38,58,59	4,14,29, 33,34,36, 46,49,50, 52	5,11, 16,28, 41,47, 56	23, 35, 40, 60	42, 55	22
121	107	28	30, 57	6, 9, 11, 36	3,4, 15,27, 39,48, 54	12,16,24, 29,31,37, 51,55,56, 59	1,5,13, 17,21,23, 25,32,33, 45,46,58	7,10,18, 20,26,34, 35,41,42, 50	2,19, 22,43, 49,52, 53	14, 40, 47, 60	38, 44	8
122	129	12	47, 56	9, 18, 41, 42	5,11, 15,23, 33,59, 60	3,19,25, 37,39,44, 45,48,55, 58	2,6,8, 17,24,28, 30,31,40, 46,52,54	4,7,13, 21,22,29, 34,35,36, 50	10,16, 20,26, 38,43, 49	1, 27, 53, 57	14, 51	32

TABLE 25--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
123	106	34	38, 51	2, 44, 50, 59	16,24, 28,32, 39,43, 48	13,17,19, 21,22,27, 47,49,57, 58	9,10,15, 26,30,33, 36,41,45, 46,53,54	3,4,6, 12,18,20, 23,25,35, 37	1,11, 14,42, 52,55, 60	5, 7, 31, 40	8, 29	56
124	138	22	28, 36	3, 15, 32, 48	12,27, 30,51, 55,57, 58	9,16,19, 20,21,39, 43,44,53, 54	1,4,7, 10,13,14, 23,25,34, 37,45,52	5,6,11, 33,40,41, 47,49,50, 59	2,18, 29,31, 35,38, 46	8, 26, 56, 60	17, 42	24
125	136	22	6, 28	14, 36, 48, 59	11,12, 18,23, 30,32, 43	19,21,41, 42,44,47, 49,52,55, 58	1,2,5, 8,17,29, 33,37,40, 46,53,56	3,4,20, 25,26,38, 39,45,51, 60	7,9, 13,15, 16,35, 51	10, 24, 31, 57	27, 34	50
126	131	24	12, 18	30, 33, 36, 52	11,23, 49,55, 57,58, 59	5,6,8, 14,20,22, 29,35,48, 54	3,7,13, 25,28,38, 40,41,50, 51,56,60	1,9,15, 19,21,32, 39,43,46, 53	2,16, 17,26, 27,42, 47	4, 10, 34, 37	31, 45	44
127	114	57	15, 32	28, 44, 51, 53	3,20, 21,22, 27,38, 58	1,9,17, 26,33,34, 49,50,51, 59	4,7,11, 13,19,23, 25,37,40, 41,43,45	2,6,11, 16,29,36, 39,46,48, 52	10,18, 24,30, 31,35, 55	12, 47, 56, 60	5, 8	42

TABLE 25--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
128	113	19	3, 39	22, 44, 50, 54	2,21, 24,25, 43,45, 57	7, 9,10, 15,16,20, 27,33,49, 51	4, 6,13, 14,28,32, 34,38,41, 52,53,59	8,17,18, 23,35,36, 40,46,48, 58	11,12, 26,29, 31,55, 60	5, 37, 42, 47	1, 56	30
129	115	36	11, 28	12, 41, 48, 59	2, 9, 10,22, 26,33, 51	5, 6,19, 20,23,34, 46,49,52, 58	4,16,24, 32,35,37, 38,42,50, 53,54,57	3,15,27, 30,40,43, 44,45,47, 55	1, 8, 13,18, 25,29, 39	14, 21, 56, 60	7, 31	17
130	123	59	26, 56	1, 6, 11, 23	3,18, 28,50, 51,52, 53	10,12,13, 16,17,19, 29,30,32, 33	2, 4,21, 22,24,34, 35,36,37, 38,42,49	5,14,15, 43,44,45, 46,47,48, 54	25,31, 40,41, 55,58, 60	7, 9, 27, 39	8, 57	20
131	127	22	28, 43	3, 15, 27, 53	9,16, 20,21, 37,49, 51	4, 7,10, 14,24,32, 39,44,48, 57	2,13,19, 25,26,29, 34,45,50, 52,54,55	1, 6, 8, 11,31,33, 38,40,46, 58	5,12, 17,35, 36,56, 60	18, 30, 36, 59	42, 47	23
132	130	21	20, 39	22, 24, 43, 57	1,10, 18,19, 30,34, 49	4, 5, 6, 8, 9,15, 27,28,36, 52	13,23,29, 31,33,40, 42,45,47, 55,59,60	7,16,25, 26,37,38, 44,46,53, 58	11,12, 14,17, 32,35, 50	3, 41, 48, 51	2, 54	56

TABLE 25--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective Pile Numbers										
		1	2	3	4	5	6	7	8	9	10	11
133	119	27	3, 9	19, 21, 39, 58	15,33, 43,45, 49,51, 54	14,22,24, 28,34,38, 41,44,48, 57	6,8,11, 12,16,26, 32,36,47, 50,59,60	2,5,7, 20,23,37, 46,52,53, 56	1,13, 17,18, 25,29, 30	10, 35, 42, 55	4, 31	40
134	112	9	12, 57	15, 26, 44, 50	13,21, 38,39, 45,49, 52	2,19,24, 27,34,36, 37,43,51, 58	1,4,6, 10,14,16, 18,20,25, 28,53,55	3,7,17, 22,23,32, 35,46,54, 60	5,11, 29,31, 40,48, 59	8, 41, 47, 56	30, 33	42
135	120	22	15, 28	6, 43, 44, 51	20,27, 30,32, 40,46, 49	4,10,13, 18,21,38, 45,52,53, 59	1,3,9, 11,12,19, 23,24,35, 39,41,57	2,25,29, 31,33,36, 37,42,48, 54	5,7, 11,26, 31,55, 60	16, 17, 50, 58	8, 47	56
136	137	15	3, 44	22, 39, 45, 53	2,8, 21,26, 27,38, 49	10,13,20, 24,32,34, 37,41,51, 54	1,7,19, 28,31,35, 43,46,52, 57,58,60	4,6,9, 14,16,25, 29,47,48, 55	11,17, 18,23, 33,36, 56	12, 30, 50, 59	40, 42	5
137	105	22	28, 31	1, 15, 43, 45	10,13, 16,21, 35,36, 37	3,7,9, 11,19,20, 27,30,39, 57	5,14,25, 11,44,46, 47,48,54, 55,58,60	2,4,17, 24,26,34, 38,42,49, 56	8,12, 18,29, 32,33, 59	50, 51, 52, 53	6, 23	40
138	Discontinued course before completing sort											

TABLE 26

THE CONFIGURATION OF Q-SORTS DONE BY THE LEADERSHIP CLASS MEMBERS
ABOUT THEMSELVES AT THE END OF THE COURSE

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
103	11	12,59	13,36, 52,57	7, 9, 23,29, 30,31, 13	1,19,22, 24,27,32, 37,39,47, 54	3, 5, 6, 15,17,21, 33,42,45, 48,51,60	8,14,16, 28,35,38, 41,49,55, 56	2,18 25,34, 46,50, 58	10,26, 40,44	20,53	4
104	27	22,57	13,21, 28,37	2, 3, 14,32, 43,44, 51	6,11,16, 19,20,26, 35,38,39, 45	7, 9,10, 15,25,34, 49,50,52, 53,55,58	4,12,24, 30,33,36, 40,44,46, 48	1,17, 18,31, 42,54, 59	8,23, 47,56	5,60	29
105	28	22,43	11,19, 24,32	7,13, 15,21, 45,48, 51	2, 9,27, 37,39,44, 49,52,58, 59	1, 3,14, 16,33,36, 38,50,53, 54,55,57	4, 6,17, 20,23,26, 31,34,40, 46	12,18, 30,35, 41,42, 60	5,10, 29,47	25,56	8
106	12	22,28	36,39, 54,57	9,11, 13,14, 23,43, 59	1, 2, 3, 6,19,21, 26,49,50, 51	15,16,17, 24,32,38, 41,44,45, 48,52,58	7, 8,20, 25,27,30, 34,35,37, 55	10,29, 31,46, 47,53, 60	4, 5, 33,40	18,56	42
107	16	13,43	9,15, 21,38	6, 7, 19,20, 39,48, 54	3, 4,22, 28,35,36, 51,52,53, 57	2,11,14, 23,24,30, 35,40,44, 45,55,59	12,25,26, 27,29,41, 47,49,50, 58	5,18, 33,34, 37,46, 56	1, 8, 31,60	17,42	10

TABLE 26—Continued

Individuals	Items in the Respective File Numbers									
	1	2	3	4	5	6	7	8	9	10
108	44	46,53	21,33, 57,58	9,16, 19,22, 37,49, 51	2,11,13, 20,28,38, 39,40,45, 50	1,4,6, 8,15,25, 26,27,30, 32,43,54	5,7,10, 14,17,24, 34,36,55, 59	3,29, 31,35, 41,48, 52	12,18, 23,60	12,47
109	36	21,39	14,19, 20,57	4,12, 34,38, 45,49, 53	3,9,11, 13,15,28, 44,54,58, 59	2,7,16, 23,25,32, 33,40,43, 50,51,52	10,17,18, 24,27,31, 41,42,48, 55	6,22, 26,29, 30,37, 60	1,5, 35,46	47,56
110	9	15,57	17,22, 27,32	13,16, 28,30, 36,43, 51	2,4,6, 11,14,25, 38,49,50, 54	1,3,7, 12,21,23, 33,34,46, 48,52,53	19,20,24, 37,39,41, 44,45,55, 58	5,8, 26,29, 47,56, 59	10,40, 42,60	18,31
111	13	7,49	2,11, 32,36	19,21, 37,39, 44,46, 52	3,8,20, 26,27,34, 53,54,57, 59	1,6,9, 15,18,24, 28,33,38, 41,43,51	4,5,22, 23,25,29, 35,40,55, 58	10,12, 14,17, 30,45, 48	31,47, 50,56	16,42
112	28	40,57	12,13, 37,46	20,23, 24,43, 48,51, 53	1,15,16, 19,21,27, 32,34,50, 52	3,7,9, 11,25,30, 31,36,38, 44,49,58	5,14,18, 22,26,35, 45,47,54, 55	2,6, 39,41, 42,59, 60	8,29, 33,56	4,10

TABLE 26—Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
113	22	43,53	6,28, 48,50	3,12, 15,19, 20,25, 44	9,11,16, 27,30,32, 36,49,55, 58	2,4,5, 10,18,21, 24,33,42, 51,54,57	7,11,23, 26,35,39, 40,45,46, 60	1,8, 13,37, 38,47, 59	29,31, 41,56	17,52	34
114	16	20,28	15,21, 39,50	10,19, 43,45, 51,53, 57	2,3,9, 27,34,38, 44,52,54, 58	4,5,6, 12,13,22, 26,32,33, 46,48,49	11,17,23, 24,25,30, 36,40,41, 59	1,14, 18,29, 35,37, 47	7,31, 55,56	42,60	8
115	22	28,57	14,20, 39,53	3,4, 16,21, 35,44, 58	2,15,19, 25,32,36, 37,43,51, 55	12,13,26, 27,30,34, 41,45,46, 48,49,50	1,8,9, 10,11,17, 38,40,52, 54	6,7, 18,23, 24,29, 33	31,47, 56,59	5,60	42
116	11	14,32	3,22, 30,36	9,16, 28,44, 51,57, 58	2,7,12, 15,21,24, 27,43,53, 56	1,4,13, 17,19,31, 34,38,45, 48,50,54	6,20,25, 29,37,39, 46,49,55, 59	5,18, 23,26, 33,47, 52	10,35, 40,41	8,60	42
117	10	21,39	16,26, 27,49	3,15, 24,33, 47,48, 54	13,19,20, 22,25,30, 32,36,45, 52	1,2,7, 9,14,28, 34,38,40, 44,53,58	5,12,23, 29,41,46, 55,56,59, 60	6,17, 18,31, 37,43, 50	8,11, 35,51	4,57	42

TABLE 26--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
118	22	28, 38	32, 49, 53, 58	2, 16, 26, 27, 34, 44, 50	3, 13, 14, 19, 20, 24, 35, 43, 48, 54	1, 6, 7, 9, 15, 17, 21, 33, 39, 45, 46, 52	4, 10, 11, 23, 25, 36, 41, 47, 55, 59	5, 12, 29, 31, 37, 51, 57	8, 30, 40, 56	18, 42	60
119	28	37, 57	9, 22, 36, 53	2, 16, 20, 32, 35, 50, 54	10, 19, 21, 27, 38, 44, 45, 48, 51, 52	3, 4, 6, 7, 12, 13, 15, 30, 33, 39, 49, 58	1, 17, 23, 24, 26, 34, 41, 43, 59, 60	11, 14, 18, 29, 40, 47, 55	8, 25, 42, 46	5, 56	31
120	15	3, 22	32, 36, 44, 58	4, 7, 16, 20, 34, 50, 52	10, 14, 21, 26, 28, 30, 43, 45, 51, 53	2, 5, 17, 19, 24, 25, 27, 38, 39, 40, 48, 54	8, 9, 12, 13, 23, 35, 41, 46, 47, 49	1, 6, 11, 55, 56, 57, 59	18, 31, 33, 37	29, 60	42
121	20	19, 43	10, 15, 54, 55	3, 7, 13, 14, 21, 27, 45	1, 9, 24, 32, 37, 39, 48, 51, 57, 58	4, 6, 12, 25, 26, 28, 30, 33, 34, 41, 49, 52	2, 5, 16, 23, 31, 36, 38, 44, 50, 53	8, 11, 17, 35, 40, 46, 59	29, 47, 56, 60	18, 42	22
122	22	3, 21	2, 38, 39, 51	9, 13, 16, 32, 34, 49, 54	19, 20, 26, 27, 31, 41, 43, 45, 50, 58	4, 12, 15, 28, 37, 40, 44, 46, 48, 52, 53, 57	6, 7, 11, 14, 17, 24, 25, 30, 36, 55	1, 5, 10, 18, 33, 35, 59	23, 29, 47, 56	42, 60	8

TABLE 26--Continued

Individuals	Items in the Respective File Numbers										
	1	2	3	4	5	6	7	8	9	10	11
123	39	27,28	21,22, 24,32	2, 9, 15,16, 34,38, 48	3, 7,11, 26,49,50, 51,52,53, 57	1, 4, 5, 13,30,35, 41,43,44, 47,54,59	6,10,18, 19,20,33, 36,45,46, 58	11,23, 25,29, 55,56, 60	8,31, 37,40	12,17	42
124	22	3,32	9,19, 28,43	13,20, 21,26, 34,38, 51	2, 7,15, 27,39,44, 46,52,54, 57	1,16,18, 24,25,31, 37,45,49, 50,55,58	4,11,14, 30,33,35, 36,41,52, 59	5,10, 23,46, 47,56, 60	6,12, 17,42	29,40	8
125	15	2,21	3,32, 38,50	16,22, 28,34, 39,44, 54	4, 7,10, 13,41,20, 33,45,52, 53	6,19,23, 24,26,27, 30,43,46, 49,57,59	1, 5, 9, 12,25,35, 48,55,58, 60	11,29, 31,40, 41,47, 51	17,18, 37,42	8,36	56
126	49	13,16	3,22, 34,59	7,15, 19,27, 38,44, 57	14,20,21, 36,45,48, 51,53,54, 58	2, 6, 8, 9,11,12, 26,28,30, 32,33,39	1, 4,10, 17,18,24, 40,41,52, 55	25,37, 42,43, 47,50, 60	5,35, 46,56	29,31	23
127	22	16,51	20,38, 44,58	2,19, 26,27, 28,43, 53	3,13,21, 32,33,34, 39,45,52, 54	1, 4, 7, 15,17,24, 25,30,36, 49,50,55	6, 9,10, 11,12,37, 48,56,57, 60	14,18, 23,31, 40,46, 59	5, 8, 35,41	29,47	42

TABLE 26--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
128	17	1,47	7,29, 48,56	5,23, 40,42, 45,46, 60	4,14,25, 26,30,31, 35,36,41, 54	2,3,11, 18,19,21, 24,33,34, 52,53,55	6,8,12, 13,20,27, 32,37,43, 59	10,15, 28,38, 39,44, 58	9,16, 50,51	22,49	57
129	22	32,49	21,39, 48,57	7,10, 11,12, 33,36, 43	3,9,24, 28,31,34, 35,45,47, 54	6,8,14, 15,16,25, 27,50,51, 52,53,55	2,4,13, 19,26,29, 38,40,44, 58	5,17, 20,23, 41,59, 60	1,37, 46,56	18,42	30
130	28	7,13	6,27, 49,52	10,15, 19,32, 33,48, 59	1,11,14, 24,35,36, 39,45,56, 57	5,8,9, 17,18,21, 34,41,42, 44,50,53	2,3,4, 20,26,29, 30,38,51, 60	12,16, 22,43, 46,55, 58	25,31, 37,47	23,54	40
131	43	28,37	27,48, 49,51	19,20, 22,32, 53,54, 58	9,10,13, 15,21,24, 30,34,44, 57	1,3,4, 6,11,14, 25,36,39, 45,52,55	7,8,16, 17,26,31, 33,35,40, 50	2,5, 12,18, 38,41, 59	23,29, 42,46	47,60	56
132	57	9,51	3,21, 22,52	7,30, 40,43, 46,54, 58	13,20,26, 28,37,39, 45,48,49, 59	5,10,18, 24,25,34, 35,44,47, 50,55,56	1,2,4, 8,11,15, 27,29,32, 36	14,16, 17,31, 33,38, 41	6,19, 53,60	23,42	12

TABLE 26--Continued

Individuals	Items in the Respective Pile Numbers										
	1	2	3	4	5	6	7	8	9	10	11
133	58	24,38	9,25, 45,59	6,11, 18,22, 30,41, 42	1, 7,12, 15,16,21, 36,37,51, 53	2, 3, 8, 17,26,29, 35,44,46, 52,54,55	13,19,27, 28,32,34, 39,49,56, 60	5,20, 23,31, 40,43, 50	4,14, 47,57	10,33	48
134	9	21,36	2,12, 28,34	3,32, 39,43, 51,57, 59	11,13,14, 15,18,19, 27,44,52, 53	6,10,17, 20,22,24, 33,45,54, 55,58,60	1, 4, 5, 16,25,38, 46,48,49, 50	7,23, 30,35, 37,40, 56	8,26, 29,41	31,42	47
135	57	15,28	13,22, 49,52	14,23, 24,32, 43,44, 53	7,11,20, 27,36,37, 45,48,51, 58	2, 4, 6, 10,16,17, 18,21,29, 30,35,47	3, 9,12, 25,26,34, 38,41,54, 59	1, 5, 33,40, 42,46, 56	8,19, 31,60	39,55	50
136	57	22,38	2,12, 28,32	9,13, 20,30, 33,51, 52	10,15,21, 24,36,39, 40,45,48, 53	3, 4, 6, 25,26,27, 35,43,44, 49,54,58	1, 7, 8, 11,29,31, 41,46,47, 55	16,17, 19,23, 34,50, 60	5,18, 37,42	11,59	56

TABLE 27

THE CONFIGURATION OF Q-SORTS DONE BY THE LEADERSHIP CLASS MEMBERS
ABOUT OTHER SPECIFIED MEMBERS AT THE END OF THE COURSE

Individuals Doing the Sort		Individuals About Whom Sort is Done		Items in the Respective Pile Numbers										
				1	2	3	4	5	6	7	8	9	10	11
103	109	36	12, 30	1, 11, 18, 37	13,16, 23,34, 43,48, 57	2, 3,11, 17,25,28, 39,49,50, 51	6,21,24, 29,32,33, 35,38,47, 58,59,60	4, 7, 9, 19,22,27, 31,41,42, 45	5,8, 20,46, 52,54, 55	40, 44, 53, 56	15, 26	10		
104	120	21	27, 57	15, 22, 28, 37	2,16, 20,33, 43,51, 58	6,13,14, 19,25,32, 34,35,38, 49	1,3,9, 10,17,23, 24,39,52, 53,54,59	4, 7, 18, 26,30,40, 45,46,50, 55	11,12, 36,41, 42,48, 56	8, 29, 47, 60	31, 44	5		
105	136	56	11, 29	30, 33, 48, 59	9,21, 27,39, 41,54, 57	1,6,12, 13,17,18, 36,37,47, 52	2,5,16, 23,34,35, 42,46,49, 53,58,60	3, 4, 8, 22,24,25, 28,40,43, 55	7,10, 14,15, 19,31, 51	20, 26, 32, 35	38, 50	44		
106	123	22	36, 39	9, 24, 28, 35	3,12, 21,27, 30,54, 57	1,8,13, 19,20,26, 32,43,46, 50	7,11,14, 15,25,33, 37,45,49, 51,55,59	6,10,23, 34,38,40, 41,48,58, 60	2,4, 5,16, 18,44, 52	17, 29, 31, 47	53, 56	42		
107	121	60	21, 28	9, 13, 54, 57	15,19, 22,24, 43,47, 53	2,4,14, 37,39,45, 48,51,52, 55	6,7,10, 17,23,25, 32,34,38, 40,41,49	3, 5,11, 16,18,20, 27,31,35, 44	1,12, 26,29, 30,50, 59	33, 36, 46, 58	42, 56	8 136		

TABLE 27--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
108	124	22	21, 58	2, 30, 50, 51	9,16, 20,27, 28,53, 57	4, 7,18, 19,25,36, 37,40,43, 48	3,12,13, 15,30,31, 34,46,49, 52,54,55	6, 8,11, 14,23,29, 32,39,44, 59	10,17, 26,41, 47,56, 60	1, 24, 33, 45	35, 42	5
109	113	38	49, 57	6, 15, 21, 43	3,25, 28,36, 44,53, 54	11,13,24, 27,29,33, 39,51,58, 59	4, 7, 9, 10,17,19, 20,30,48, 50,52,60	2,14,32, 34,40,41, 45,46,47, 55	1, 5, 12,16, 18,26, 31	8, 22, 23, 56	35, 42	37
110	115	57	9, 15	20, 22, 27, 32	13,16, 28,30, 36,43, 51	2, 4, 6, 11,14,25, 38,49,50, 54	1, 3, 7, 12,21,23, 33,34,46, 48,52,53	17,19,24, 37,39,41, 44,45,55, 58	5, 8, 26,29, 47,56, 59	10, 40, 42, 60	18, 31	35
111	108	27	3, 39	9, 21, 45, 57	11,13, 15,20, 37,52, 54	8,22,25, 28,34,46, 50,51,53, 55	1,14,16, 24,26,30, 32,33,36, 44,49,58	2, 7,10, 12,19,23, 31,41,43, 47	5,17, 35,38, 40,48, 60	6, 18, 42, 59	29, 56	4
112	134	36	53, 57	12, 20, 48, 50	7,13, 21,27, 29,32, 35	6, 9,15, 16,40,44, 46,51,52, 55	4, 8,10, 14,17,18, 28,31,33, 38,49,54	3, 5,22, 23,30,37, 43,45,58, 59	1,11, 25,26, 42,47, 56	2, 19, 24, 60	34, 41	39

TABLE 27—Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective Pile Numbers										
		1	2	3	4	5	6	7	8	9	10	11
113	128	54	6, 37	11, 17, 32, 43	1, 3, 7,13, 25,45, 49	10,16,19, 21,24,36, 52,57,59, 60	12,15,20, 26,31,33, 34,39,44, 46,53,58	2, 8, 9, 18,27,28, 38,42,51, 56	4,22, 30,41, 48,50, 55	23, 29, 40, 47	5, 35	14
114	127	16	21, 53	20, 22, 51, 57	3,15, 28,32, 34,43, 44	4,10,26, 27,38,39, 40,45,50, 54	2, 6, 7, 9,12,13, 19,24,33, 49,55,58	1,11,14, 17,25,41, 46,48,52, 59	5,18, 30,31, 36,37, 47	8, 23, 35, 60	29, 56	42
115	129	22	28, 43	14, 16, 20, 53	3, 4, 15,35, 39,44, 55	2,10,25, 27,32,38, 41,46,49, 57	1, 7,17, 19,21,26, 36,48,51, 52,54,58	6, 9,12, 13,18,24, 30,34,37, 45	8,11, 29,33, 40,56, 59	5, 31, 50, 60	23, 47	42
116	119	11	6, 14	16, 23, 28, 37	15,32, 33,36, 45,47, 51	9,13,21, 27,39,41, 49,53,57, 59	2, 3, 4, 7,25,26, 29,46,50, 55,56,58	1,19,20, 22,30,34, 38,43,52, 54	10,17, 18,35, 40,44, 48	12, 24, 31, 60	5, 8	42
117	114	22	2, 24	12, 32, 36, 51	10,15, 16,21, 30,39, 57	3, 6, 7, 26,34,37, 38,45,58, 59	4, 8,18, 25,31,35, 40,42,43, 46,47,55	9,11,13, 19,27,48, 49,50,53, 54	1,14, 20,23, 44,52, 60	5, 28, 29, 41	33, 56	17

TABLE 27--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective Pile Numbers									
		1	2	3	4	5	6	7	8	9	10 11
118	107	22	9, 18	3, 7, 11, 47	12, 31, 40, 49, 51, 57, 59	2, 5, 13, 15, 24, 30, 36, 48, 52, 58	1, 16, 21, 27, 29, 32, 33, 35, 38, 43, 44, 54	10, 14, 20, 23, 28, 34, 37, 46, 53, 56	4, 6, 17, 29, 41, 45, 50	19, 25, 26, 60	8, 55
119	133	22	6, 39	28, 36, 49, 54	4, 16, 27, 30, 32, 35, 57	10, 11, 21, 37, 43, 44, 46, 50, 51, 55	1, 2, 9, 13, 15, 18, 20, 33, 42, 48, 52, 53	3, 7, 8, 19, 24, 25, 38, 40, 45, 59	12, 23, 29, 41, 56, 58, 60	14, 26, 34, 47	17, 31
120	135	10	27, 50	13, 15, 21, 52	3, 14, 32, 45, 49, 54, 58	11, 17, 20, 26, 30, 39, 43, 51, 53, 59	2, 5, 7, 9, 25, 28, 34, 36, 40, 44, 48, 55	4, 8, 16, 18, 19, 22, 24, 31, 38, 57	23, 29, 33, 35, 37, 42, 60	12, 41, 46, 47	1, 56
121	111	20	10, 32	1, 3, 27, 57	9, 11, 17, 24, 28, 30, 55	4, 14, 15, 21, 35, 37, 39, 45, 48, 54	6, 8, 12, 13, 19, 33, 38, 43, 49, 51, 53, 60	16, 25, 26, 34, 36, 41, 44, 50, 58, 59	2, 7, 18, 31, 42, 46, 52	5, 22, 23, 40	29, 47
122	117	22	27, 50	18, 21, 31, 57	9, 12, 28, 30, 36, 39, 51	11, 13, 15, 32, 33, 35, 46, 48, 58, 59	4, 5, 6, 7, 17, 19, 20, 23, 24, 45, 52, 55	2, 3, 25, 26, 29, 34, 38, 41, 47, 56	1, 14, 37, 44, 53, 54, 60	10, 16, 17, 43, 49	8, 40

TABLE 27--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
123	130	39	22, 28	15, 32, 51, 53	2, 3, 24, 27, 38, 40, 57	4, 9, 16, 19, 26, 44, 49, 50, 52, 54	7, 10, 11, 14, 21, 30, 37, 41, 46, 47, 48, 56	6, 12, 13, 18, 25, 29, 35, 36, 45, 55	8, 20, 23, 33, 34, 43, 59	1, 17, 31, 58	5, 60	42
124	116	22	3, 32	16, 36, 50, 58	4, 9, 20, 27, 28, 30, 51	5, 7, 11, 18, 33, 34, 44, 45, 57, 59	12, 13, 15, 21, 25, 37, 39, 43, 48, 53, 54, 55	1, 2, 19, 23, 24, 26, 31, 38, 40, 60	10, 14, 29, 41, 47, 52, 56	6, 17, 35, 42, 49	17, 46	8
125	110	36	18, 30	9, 17, 24, 57	1, 2, 6, 12, 37, 48, 51	11, 13, 16, 23, 29, 33, 41, 43, 52, 60	4, 14, 19, 21, 25, 39, 45, 47, 49, 54, 58, 59	5, 8, 20, 27, 28, 31, 32, 38, 55, 56	7, 10, 22, 35, 42, 44, 46	15, 26, 40, 50	34, 53	3
126	118	15	13, 59	7, 16, 34, 57	3, 19, 27, 38, 44, 45, 54	9, 14, 20, 21, 22, 36, 41, 48, 49, 51	2, 4, 6, 12, 24, 26, 28, 30, 32, 33, 52, 58	1, 11, 17, 18, 37, 39, 40, 50, 55, 56	10, 25, 29, 43, 46, 47, 60	5, 8, 31, 35, 53	42	23
127	131	28	32, 39	15, 33, 36, 59	37, 44, 49, 50, 52, 53, 54	2, 13, 16, 22, 23, 24, 26, 38, 51, 58	4, 6, 9, 12, 19, 20, 21, 25, 27, 34, 45, 55	7, 11, 17, 18, 35, 42, 43, 46, 48, 56	1, 3, 8, 14, 30, 40, 60	10, 29, 41, 57	31, 47	5

TABLE 27--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective Pile Numbers									
		1	2	3	4	5	6	7	8	9	10 11
128	105	15	9, 49	21, 39, 51, 57	10,12, 13,22, 27,28, 43	2, 6,16, 18,24,33, 36,38,48, 54	3, 7,11, 17,19,25, 30,31,35, 37,45,50	4,26,32, 34,41,44, 52,53,58, 59	1, 5, 14,20, 29,40, 46	8, 55, 56, 60	23, 47
129	122	27	22, 51	28, 32, 50, 54	3, 4, 9,24, 36,39, 45	7,19,20, 21,31,37, 46,49,57, 59	6,10,11, 12,15,25, 29,33,34, 43,48,55	1, 2,23, 26,35,38, 40,44,47, 53	5,13, 14,18, 30,42, 52	16, 17, 58, 60	8, 41
130	132	7	13, 15	39, 44, 52, 53	1, 4, 19,33, 49,54, 58	3,10,14, 21,27,28, 29,32,41, 45	2, 6, 9, 11,16,20, 38,43,46, 48,50,57	18,22,23, 24,25,26, 31,51,55, 56	8,12, 34,35, 36,37, 59	17, 30, 42, 47	5, 60
131	126	28	32, 43	9, 27, 39, 49	3, 4, 10,21, 30,54, 57	8,14,15, 18,22,34, 45,48,51, 53	1, 2,13, 19,25,26, 33,37,38, 52,55,58	7,12,16, 20,24,31, 36,44,46, 60	6,35, 40,42, 47,50, 59	5, 11, 17, 23	29, 41
132	112	57	21, 22	3, 6, 30, 37	11,36, 39,40, 43,44, 54	9,12,14, 17,18,19, 25,33,35, 59	2, 7,10, 16,23,24, 26,31,38, 42,51,58	1,13,15, 27,46,48, 49,50,53, 56	4, 5, 20,28, 32,52, 55	31, 41, 45, 47	29, 60

TABLE 27--Continued

Individuals Doing the Sort	Individuals About Whom Sort is Done	Items in the Respective Pile Numbers										
		1	2	3	4	5	6	7	8	9	10	11
133	106	51	18, 19	16, 14, 55	5, 6, 13, 32, 35, 45, 58	1, 11, 15, 17, 20, 28, 37, 46, 49, 54	3, 9, 25, 29, 31, 36, 38, 40, 47, 48, 52, 56	2, 4, 21, 24, 30, 34, 39, 53, 57, 60	10, 12, 22, 26, 27, 33, 43	8, 14, 50, 59	7, 23	42
134	104	12	9, 30	13, 17, 39, 57	11, 19, 26, 28, 45, 51, 54	5, 18, 21, 23, 32, 33, 35, 37, 42, 52	1, 3, 14, 20, 22, 24, 27, 31, 34, 36, 46, 50	4, 7, 10, 14, 44, 48, 49, 53, 59, 60	6, 16, 25, 40, 43, 56, 58	2, 15, 29, 55	8, 38	47
135	103	37	15, 16	7, 20, 38, 57	14, 17, 23, 24, 29, 44, 51	3, 4, 21, 28, 32, 39, 43, 48, 52, 53	2, 9, 11, 13, 27, 36, 41, 45, 46, 47, 56, 58	6, 12, 19, 22, 30, 35, 50, 54, 55, 59	1, 10, 25, 26, 33, 34, 49	18, 31, 40, 42	8, 60	5
136	125	20	39, 53	3, 9, 15, 21	10, 16, 38, 44, 45, 50, 57	4, 6, 13, 24, 27, 28, 32, 49, 52, 54	1, 2, 7, 14, 19, 22, 33, 34, 37, 40, 41, 43	8, 18, 25, 26, 35, 46, 47, 48, 51, 55	11, 12, 29, 36, 56, 59, 60	5, 23, 30, 31	17, 42	58

TABLE 28

THE CONFIGURATION OF THE Q-SORTS ARRANGED BY THE INSTRUCTORS BEFORE AND AFTER THE COURSE
TO DESCRIBE AN IDEAL GROUP MEMBER

		Items in the Respective File Numbers										
		1	2	3	4	5	6	7	8	9	10	11
"Before"												
Instructor "A"	28	12, 32	22, 25, 43, 58	6,16, 21,37, 44,46, 57	2,10,14, 15,30,36, 42,48,49, 53	3,4,9, 19,27,34, 38,39,45, 50,51,54	1,7,13, 24,26,31, 33,40,52, 55	8,11, 17,20, 23,47, 59	18, 29, 41, 60	35, 56	5	
Instructor "B"	28	6, 22	16, 49, 51, 58	15,19, 25,32, 38,43, 53	2,3,4, 9,20,26, 27,34,44, 55	7,8,10, 13,24,30, 37,39,45, 50,52,54	11,12,14, 18,31,33, 40,41,46, 48	23,29, 35,47, 56,59, 60	5, 21, 36, 57	1, 42	17	
"After"												
Instructor "A"	28	12, 15	1, 19, 37, 49	25,26, 27,32, 33,46, 58	3,9,11, 16,21,39, 44,45,51, 54	2,4,8, 10,20,22, 34,38,40, 50,53,55	6,7,13, 17,24,31, 36,43,52, 57	11,29, 30,47, 48,59, 60	18, 41, 42, 56	5, 23	35	
Instructor "B"	28	16, 22	43, 49, 51, 58	25,26, 32,34, 38,44, 53	2,4,6, 9,15,19, 20,27,37, 39	3,7,10, 13,24,33, 40,45,46, 48,54,55	5,8,11, 12,30,41, 47,52,57, 60	14,18, 23,29, 36,56, 59	1, 21, 31, 35	42, 50	17	

TABLE 29

A SUMMARY OF OBSERVER A'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES' CATEGORY FOR
THE FIRST QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	1	1	9	8	51	42	9	15	6	3	0	0	115
102	1	1	3	10	49	92	21	37	5	5	1	1	256
103	0	1	2	0	8	6	0	1	0	0	0	1	19
104	0	1	0	1	1	5	1	2	0	8	2	0	20
105	0	0	0	0	1	7	0	0	0	5	0	0	19
106	0	0	0	0	3	1	0	1	0	0	0	1	6
107	0	2	1	0	4	5	2	2	0	4	2	0	22
108	0	0	0	1	1	5	0	0	0	0	0	0	2
109	1	0	1	0	3	9	0	0	0	2	0	0	16
110	1	0	2	0	4	3	0	0	0	3	0	1	14
111	0	0	0	1	0	5	0	1	0	1	0	0	8
112	0	1	0	0	1	8	2	0	1	0	2	0	15
113	0	0	0	0	3	4	1	0	0	0	0	0	8
114	0	0	3	4	5	4	2	0	0	6	3	0	29
115	0	2	9	0	23	11	2	0	0	1	3	0	51
116	0	0	2	6	27	11	1	3	0	2	2	0	54
117	0	0	0	0	0	0	0	0	0	0	1	0	1
118	0	0	0	0	0	0	0	0	0	0	1	0	2
119	0	0	3	1	8	4	5	1	0	8	1	0	21
120	0	0	0	5	11	0	0	0	0	8	0	0	24

TABLE 29--Continued

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
121	0	0	0	0	0	0	0	0	0	1	0	0	1
122	0	1	1	1	5	11	1	0	0	0	0	0	20
123	0	0	1	1	0	2	0	0	0	2	1	0	8
124	0	0	1	1	6	14	2	0	1	3	1	0	28
125	0	0	0	0	0	0	0	0	0	1	1	0	2
126	0	0	0	0	0	0	0	0	0	1	0	0	2
127	0	1	0	1	0	0	0	0	0	0	0	0	1
128	0	0	0	0	2	1	0	0	0	0	1	0	5
129	0	0	0	0	0	0	0	0	0	0	1	0	1
130	0	0	0	0	0	1	0	0	0	0	1	0	2
131	0	0	0	0	0	1	0	0	0	0	6	0	11
132	0	0	0	0	0	1	0	0	0	0	0	0	1
133	0	0	0	0	1	0	0	1	0	0	2	1	64
134	0	0	1	1	30	23	0	0	0	5	0	0	7
135	0	0	0	0	3	3	0	0	0	0	1	0	5
136	0	0	0	0	0	0	0	0	0	0	5	4	57
0	0	4	3	9	8	12	1	5	0	7	4	4	34
	0	22	2	0	5	0	0	0	0	5	0	0	
Total	4	36	45	81	269	285	50	71	13	81	43	13	991

TABLE 30

A SUMMARY OF OBSERVER A'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES: CATEGORY FOR THE SECOND QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	1	5	2	23	60	49	8	8	5	1	0	2	164
102	2	2	0	55	62	98	18	39	2	6	1	1	288
103	0	0	0	1	1	0	0	0	0	15	0	1	18
104	0	0	0	0	2	1	4	0	0	3	1	2	13
105	0	1	3	1	10	10	0	4	1	13	1	1	45
106	0	0	1	0	0	1	3	0	0	12	2	4	23
107	1	0	2	0	20	2	1	0	0	14	0	2	42
108	0	0	0	0	1	0	1	2	0	4	0	0	8
109	0	0	6	0	26	18	4	1	0	13	2	2	72
110	0	0	1	0	19	9	1	5	0	5	2	1	43
111	2	0	1	1	23	14	2	0	0	7	0	5	55
112	0	0	0	0	9	2	1	0	0	4	1	0	18
113	0	0	0	1	4	0	0	0	0	1	0	0	5
114	7	0	3	0	12	0	0	1	0	7	1	4	35
115	0	0	5	0	8	5	0	1	0	17	1	0	37
116	0	0	1	0	31	30	4	1	1	8	2	6	84
117	0	0	0	1	1	22	1	0	0	5	0	0	30
118	0	0	0	0	0	0	0	0	0	7	1	0	8
119	0	2	3	0	14	7	0	0	0	20	1	2	52
120	0	0	3	0	14	14	2	0	0	16	1	3	53

TABLE 30--Continued

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
121	0	0	0	0	2	0	0	0	0	9	0	0	11
122	0	0	0	0	0	3	0	0	0	6	0	0	9
123	0	0	0	0	7	7	4	1	0	18	1	0	38
124	0	1	1	0	24	15	4	3	0	9	3	0	60
125	0	0	0	0	1	0	0	0	0	3	0	0	4
126	0	0	0	0	1	1	0	0	0	6	1	0	9
127	0	0	0	0	3	0	0	2	1	4	0	0	10
128	1	0	0	1	13	2	0	1	0	4	0	0	22
129	0	0	1	0	2	0	0	0	0	6	1	4	14
130	0	0	0	0	1	0	0	0	0	12	0	0	13
131	0	0	0	0	3	5	0	0	0	6	0	2	16
132	1	0	0	0	2	6	0	0	0	3	0	0	12
133	0	1	3	0	29	20	5	3	0	5	4	0	74
134	0	0	0	0	5	1	2	0	0	2	0	0	10
135	1	1	0	1	4	12	2	0	0	6	1	2	30
136	3	1	3	7	45	39	3	4	2	27	8	15	157
0	0	40	1	2	1	1	0	0	0	1	0	0	46
Total	19	54	42	95	460	394	70	76	12	305	37	64	1628

TABLE 31

A SUMMARY OF OBSERVER A'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES' CATEGORY FOR
THE THIRD QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	1			38	51	51	20	24	8	4	0	0	202
102	0	0	0	7	17	16	15	4	1	2	0	0	62
103	0	0	0	0	4	7	1	1	0	5	1	0	19
104	1	0	0	0	1	2	2	1	0	3	0	0	10
105	0	0	1	1	4	8	1	2	0	6	0	1	24
106	0	0	1	1	5	1	1	1	0	7	1	0	18
107	2	0	0	2	5	37	4	1	0	9	1	2	62
108	3	0	0	2	7	29	2	0	0	5	0	0	49
109	0	1	0	0	15	27	1	0	1	2	0	3	50
110	1	1	0	0	4	2	1	0	0	1	0	0	10
111	2	0	0	0	4	4	1	0	0	1	0	1	13
112	0	0	0	0	7	17	1	1	1	2	0	0	29
113	2	0	1	0	1	5	2	3	0	1	0	0	15
114	1	1	1	0	21	16	1	1	0	7	2	2	53
115	0	0	6	1	8	9	0	0	0	2	1	0	27
116	1	0	3	1	12	12	2	1	2	8	1	4	52
117	1	0	0	9	6	22	3	7	0	0	0	1	49
118	0	0	1	0	0	1	0	0	0	2	0	3	7
119	0	0	1	2	5	11	1	0	0	4	1	0	25
120	0	0	5	20	5	31	4	7	2	9	1	1	85

TABLE 31--Continued

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
121	2	0	0	5	2	22	3	3	1	6	0	0	44
122	0	0	0	7	2	6	1	6	0	2	1	0	25
123	1	1	0	1	4	9	0	0	0	3	0	0	19
124	0	0	1	0	5	1	0	0	1	3	0	0	11
125	2	1	1	1	6	29	1	0	0	3	0	1	45
126	0	2	0	1	3	6	1	0	0	2	0	0	15
127	0	0	0	0	0	0	1	1	0	3	0	0	5
128	0	0	1	2	8	11	1	1	0	0	0	0	24
129	0	0	0	0	4	8	0	0	0	0	0	1	13
130	0	0	0	0	0	0	0	0	0	1	0	0	1
131	0	1	0	0	5	17	0	0	0	4	0	0	29
132	0	0	0	0	0	0	0	0	0	1	0	0	9
133	0	2	1	2	13	14	7	2	0	8	1	5	55
134	0	0	0	0	10	13	4	0	0	0	0	0	27
135	0	0	1	0	0	3	3	0	1	4	1	1	14
136	0	3	0	0	27	26	5	1	0	11	5	4	82
0	0	22	1	0	6	1	0	0	0	1	0	0	31
Total	20	38	28	105	282	474	90	68	18	132	25	30	1310

TABLE 32

A SUMMARY OF OBSERVER A'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUALS AND BALES' CATEGORY FOR THE FOURTH QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	0	0	0	0	14	7	2	7	0	0	0	0	46
102	0	0	0	21	28	19	13	16	2	4	0	0	103
103	0	0	0	2	11	27	2	0	0	1	0	0	43
104	0	0	0	1	6	8	1	0	0	6	0	1	23
105	0	0	1	1	26	4	1	1	0	1	0	0	35
106	1	1	0	0	8	4	2	3	0	5	0	0	24
107	1	3	1	3	15	25	5	2	1	8	0	0	64
108	0	0	0	0	14	6	0	1	0	0	0	0	21
109	0	1	1	0	13	10	1	1	0	4	0	0	31
110	0	0	0	1	11	2	1	1	0	1	0	0	17
111	0	4	0	0	21	11	0	0	0	2	0	0	38
112	0	0	0	0	3	3	0	0	0	8	0	0	14
113	0	0	1	4	7	7	0	3	1	1	0	0	24
114	0	1	0	0	19	26	0	0	0	11	0	0	57
115	0	0	0	0	15	3	1	0	0	11	0	0	30
116	2	0	0	2	37	32	0	0	2	4	1	0	80
117	2	0	2	25	11	5	3	1	1	0	0	0	50
118	1	0	0	0	8	2	0	0	0	0	0	0	11
119	0	4	0	1	30	25	0	0	0	2	0	1	63
120	0	0	0	2	5	7	1	1	0	9	0	0	25

TABLE 32--Continued

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
121	1	0	0	0	6	5	0	0	0	1	0	0	13
122	3	0	0	0	7	4	0	0	0	4	0	0	18
123	0	0	0	0	15	5	0	0	0	0	0	0	20
124	3	1	1	1	18	51	1	0	0	3	0	0	79
125	0	0	0	0	3	3	0	0	0	0	0	0	6
126	1	0	0	0	7	15	0	0	0	1	0	0	24
127	1	0	0	0	10	3	0	0	0	3	0	0	17
128	1	0	1	1	18	5	0	2	1	1	0	0	30
129	1	0	0	0	6	3	0	0	0	1	0	0	11
130	1	0	0	0	6	7	0	0	0	6	0	0	20
131	3	0	0	0	15	11	0	0	0	8	0	0	37
132	0	0	0	1	6	28	0	1	0	1	0	0	37
133	-	-	-	1	-	-	-	-	-	-	-	-	1
134	0	1	0	1	20	6	2	2	1	2	0	0	35
135	1	0	0	1	4	10	0	0	0	8	0	2	26
136	2	5	0	4	44	30	7	2	0	16	0	0	110
0	0	24	0	0	2	0	0	0	0	3	0	0	29
Total	25	47	9	86	489	419	43	44	9	136	1	4	1312

TABLE 33

A SUMMARY OF OBSERVER B'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES CATEGORY FOR THE FIRST QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	0	1	2	10	66	59	7	19	8	1	0	4	177
102	2	0	3	32	66	127	33	35	6	4	0	0	308
103	0	0	1	0	7	8	0	1	0	4	1	2	24
104	0	0	0	1	2	7	1	3	1	23	1	0	39
105	1	0	0	0	6	9	0	0	0	6	2	0	24
106	0	0	0	0	3	1	0	0	0	5	5	2	16
107	0	0	1	0	5	2	0	2	0	10	6	0	27
108	0	0	1	0	2	0	0	0	0	1	0	0	4
109	3	1	3	0	8	12	0	0	0	0	1	0	28
110	1	0	1	0	5	5	0	0	0	7	0	1	20
111	0	0	0	0	0	9	0	1	0	2	4	0	16
112	0	1	0	0	2	13	3	0	0	7	1	3	30
113	0	0	0	0	3	4	1	0	0	0	0	0	8
114	0	0	1	1	11	5	3	0	0	6	2	0	29
115	0	1	8	0	22	16	2	1	0	1	2	0	53
116	1	4	4	0	33	11	4	4	0	8	1	1	67
117	0	0	0	0	0	0	0	0	0	2	0	0	2
118	0	0	2	0	0	0	0	0	0	5	2	0	9
119	1	0	6	0	8	6	2	6	1	11	5	3	49
120	0	0	0	0	12	2	1	0	0	7	5	0	27

TABLE 33--Continued

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
121	0	0	0	0	0	0	0	0	0	3	0	0	3
122	1	0	1	0	6	14	1	0	0	0	1	0	24
123	0	0	0	0	3	2	0	0	0	3	1	0	9
124	0	0	0	0	9	19	2	0	0	3	1	0	34
125	0	0	0	0	0	0	0	0	0	6	2	0	8
126	0	0	0	0	0	0	0	0	10	3	0	0	13
127	1	0	1	0	1	1	0	1	0	1	0	0	6
128	0	0	0	0	2	2	0	0	0	0	1	0	5
129	0	0	0	0	0	0	0	0	0	3	0	0	3
130	0	0	0	0	1	0	0	0	0	1	0	0	2
131	0	0	0	0	0	0	0	0	0	7	0	3	17
132	0	0	0	0	0	0	0	0	0	8	4	0	15
133	1	0	1	0	3	0	0	0	0	14	0	7	103
134	0	0	0	0	51	26	1	2	0	0	1	0	9
135	0	0	0	0	4	3	0	0	0	0	5	0	5
136	0	1	2	1	23	14	2	7	0	8	2	7	67
0	0	17	2	0	5	0	0	0	0	4	0	0	28
Total	12	23	140	145	369	377	64	82	16	186	61	33	1308

TABLE 34

A SUMMARY OF OBSERVER B'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES' CATEGORY FOR
THE SECOND QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	5	2	6	17	67	75	12	19	6	1	0	2	212
102	5	0	1	36	82	142	28	37	6	4	1	0	342
103	0	0	0	1	1	5	0	3	0	10	1	2	23
104	0	0	0	0	3	2	4	0	0	3	1	2	15
105	1	0	7	1	13	14	2	6	1	8	3	0	56
106	0	0	2	0	6	0	3	1	0	19	7	2	40
107	7	0	1	0	15	2	1	0	0	12	0	1	39
108	0	0	1	0	2	1	0	1	0	4	4	0	13
109	0	0	5	0	33	24	4	1	0	10	3	6	86
110	0	0	1	1	20	9	0	4	0	8	3	1	47
111	2	0	2	2	17	26	2	0	1	9	4	1	66
112	0	0	0	1	8	3	1	0	0	5	4	1	23
113	0	0	1	0	6	1	0	1	0	0	1	1	11
114	6	2	11	0	18	3	0	1	0	6	4	4	55
115	0	0	14	0	11	6	0	1	0	15	3	0	50
116	1	0	3	0	42	36	5	1	1	9	1	6	105
117	0	0	0	2	8	24	0	0	0	2	1	0	37
118	0	0	0	0	0	0	0	0	0	2	0	0	2
119	1	1	7	1	15	12	0	0	0	23	7	3	70
120	0	0	3	0	21	19	1	0	0	9	3	4	60

TABLE 34--Continued

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
121	0	0	0	0	0	0	0	0	0	2	0	0	2
122	0	0	0	0	1	2	8	0	0	4	1	0	8
123	0	0	1	1	3	19	4	1	0	21	4	0	44
124	0	1	2	0	24	0	4	8	0	9	1	1	69
125	0	0	0	0	1	0	0	0	0	5	0	0	6
126	0	0	0	0	1	0	0	0	0	10	5	0	17
127	0	0	0	0	2	1	1	1	1	4	0	0	10
128	1	0	1	1	15	3	1	2	1	6	0	0	31
129	0	0	0	0	4	2	0	0	0	8	6	2	22
130	0	0	0	0	1	0	0	0	0	10	2	0	13
131	0	0	0	0	2	5	0	0	0	9	7	0	23
132	0	0	0	0	6	0	0	0	0	3	0	0	9
133	0	1	3	3	35	27	7	1	1	8	4	10	100
134	0	0	2	0	6	1	3	0	0	2	1	0	15
135	0	0	0	0	5	12	0	0	0	10	0	4	31
136	3	1	0	2	54	53	5	2	2	26	17	17	182
0	5	30	5	1	1	0	0	1	0	2	0	0	45
Total	37	39	79	70	549	537	89	92	20	298	99	70	1979

TABLE 35

A SUMMARY OF OBSERVER B'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES' CATEGORY FOR
THE THIRD QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	2	2	3	38	58	63	26	28	10	7	0	0	237
102	1	0	1	5	29	21	7	9	1	3	0	0	77
103	1	0	0	1	5	6	1	1	1	11	0	2	30
104	0	0	0	1	1	2	1	1	1	5	1	0	12
105	0	1	1	1	7	7	0	1	0	6	1	0	25
106	0	0	0	0	8	1	2	2	0	13	1	0	27
107	2	1	0	0	9	37	8	2	0	14	0	1	74
108	2	0	2	1	8	29	2	1	1	4	0	0	49
109	1	0	1	1	18	33	1	1	1	6	1	1	64
110	2	1	0	0	1	3	1	0	0	1	0	0	15
111	1	0	0	0	5	4	2	0	0	6	1	1	14
112	0	0	0	0	11	17	2	0	0	3	3	0	37
113	0	0	0	0	1	5	5	0	0	2	0	0	13
114	0	2	0	0	29	19	2	0	0	6	0	4	63
115	0	0	12	1	11	10	0	0	1	2	0	4	36
116	2	0	2	2	26	18	5	2	0	12	1	4	74
117	0	0	0	12	12	22	5	4	1	2	0	2	58
118	0	0	0	0	1	1	0	0	0	6	0	0	10
119	0	0	0	2	5	9	0	0	0	13	1	1	31
120	0	1	13	13	14	33	2	7	4	3	3	1	94

TABLE 35--Continued

Individuals	Categories											Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
121	3	0	1	5	6	24	4	2	1	4	0	50
122	0	0	0	5	6	6	7	1	1	5	0	31
123	2	0	0	0	5	12	0	0	0	12	0	31
124	0	0	0	0	3	2	0	1	0	2	0	9
125	5	1	0	1	7	29	0	0	0	10	0	53
126	0	0	0	0	4	6	2	0	0	4	3	19
127	0	0	0	0	1	0	2	0	1	1	1	6
128	0	0	0	1	11	18	4	0	0	1	0	35
129	0	0	1	0	2	9	2	0	0	0	0	15
130	0	0	0	0	0	0	1	0	0	1	0	3
131	0	0	0	2	7	18	0	0	0	6	3	36
132	0	0	0	0	0	0	0	0	0	1	0	8
133	0	0	1	5	19	21	8	4	0	14	1	82
134	0	0	0	0	11	14	2	0	0	2	0	29
135	0	0	0	0	2	5	2	0	0	6	0	15
136	1	1	1	3	45	28	5	1	0	20	5	120
0	1	27	2	2	6	1	0	0	0	3	0	43
Total	26	37	41	102	394	533	111	68	24	215	34	1625

TABLE 36

A SUMMARY OF OBSERVER B'S INTERACTION OBSERVATION RECORDINGS BY INDIVIDUAL AND BALES' CATEGORY FOR
THE FOURTH QUARTER OF THE LEADERSHIP COURSE

Individuals	Categories												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
101	1	1	0	15	19	9	7	3	0	1	0	0	57
102	1	0	0	14	37	27	17	23	0	10	0	0	129
103	0	0	1	1	14	26	1	0	0	8	1	0	52
104	0	0	0	1	8	8	1	0	0	9	5	0	32
105	1	0	2	0	27	7	1	3	1	4	0	0	46
106	1	1	0	0	15	6	2	4	0	13	0	0	44
107	1	0	0	0	19	24	2	0	0	24	0	0	72
108	0	0	1	1	14	7	1	0	0	1	0	0	25
109	0	0	1	0	11	12	1	1	0	5	0	0	39
110	0	0	1	1	19	7	1	1	0	12	0	0	34
111	0	0	1	0	21	16	0	0	0	3	2	0	43
112	0	0	0	0	7	4	1	0	0	4	0	0	16
113	0	0	1	2	9	6	3	0	1	3	0	0	33
114	0	0	1	1	22	29	0	8	1	19	0	0	72
115	1	0	1	0	18	4	1	2	0	21	0	0	49
116	3	0	2	2	40	36	0	0	2	6	5	1	96
117	2	0	1	29	12	8	2	0	2	0	0	0	56
118	0	0	0	0	8	3	1	0	0	5	0	0	17
119	1	3	0	3	26	34	0	1	0	16	1	1	86
120	0	0	0	0	9	5	2	2	0	18	0	0	36

TABLE 36--Continued

Individuals	Categories											Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
121	1	0	0	0	6	4	0	0	0	2	0	0
122	1	0	0	0	10	6	0	0	0	7	0	0
123	1	0	0	0	13	11	0	0	0	2	0	0
124	6	1	3	1	25	50	2	0	0	2	2	0
125	0	0	0	0	4	4	0	0	0	2	0	0
126	1	0	0	0	9	14	0	0	0	7	0	0
127	1	0	0	0	11	7	0	0	0	4	1	0
128	2	0	0	1	19	7	0	0	0	2	0	0
129	0	0	0	0	7	2	0	2	0	6	0	1
130	1	0	0	0	7	9	1	0	0	1	0	0
131	2	0	1	0	18	13	0	0	0	15	0	0
132	0	0	0	1	11	28	0	0	0	5	1	0
133	-	-	-	-	1	-	-	-	-	1	1	0
134	0	1	0	1	25	7	6	4	0	5	0	-
135	5	0	0	1	8	11	0	0	0	7	1	0
136	5	1	1	3	55	33	6	2	0	35	2	2
0	2	25	1	0	2	0	1	0	0	3	0	0
Total	35	33	21	78	586	484	61	58	6	288	22	5
												1677

BIOGRAPHICAL SKETCH

John T. Kirby, Jr. was born on October 23, 1929, in Alachua County, Florida. He attended the LaCrosse Elementary School and the Alachua High School. From 1947 until 1950 he attended the University of Florida, receiving the degree of Bachelor of Science in Education with honors. In 1955, he received the degree of Master of Education from this institution.

He taught in the high schools at Bushnell and Alachua, Florida; served in the Armed Forces for two years; and was employed as a teaching assistant and as a research assistant while doing graduate work at the University of Florida.

He is a member of the following honorary and professional fraternities: Phi Eta Sigma, Phi Kappa Phi, Kappa Delta Pi, and Phi Delta Kappa.

This dissertation was prepared under the direction of the chairman of the candidate's supervisory committee and has been approved by all members of that committee. It was submitted to the Dean of the College of Education and to the Graduate Council, and was approved as partial fulfillment of the requirements for the degree of Doctor of Education.

August, 1957

J. B. White
Dean, College of Education
W. E. Hunter
Dean, Graduate School

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